Getting Started • 03/2008

SMfit® Total Care Version 1.0

Quality Assurance Tool

display SOLUTIONS

EIZO®

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Software tool for displays automated control and calibration

Quality Assurance Tool SMfit® Total Care Version 1.0

Getting Started

03/2008
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Safety Guidelines

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠DANGER
indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠WARNING
indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠CAUTION
with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.

CAUTION
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.

NOTICE
indicates that an unintended result or situation can occur if the corresponding information is not taken into account.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The device/system may only be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

Prescribed Usage

Note the following:

⚠WARNING
This device may only be used for the applications described in the catalog or the technical description and only in connection with devices or components from other manufacturers which have been approved or recommended by Eizo. Correct, reliable operation of the product requires proper transport, storage, positioning and assembly as well as careful operation and maintenance.

Trademarks

All names identified by ® are registered trademarks of the EIZO GmbH. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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℗ 04/2008

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Introduction 1

CAUTION
This manual is intended for service personal only.

This manual serves as a quick installation reference and a starting guide through the initial configuration steps required to use SMfit® Total Care. It is not intended as an extensive user's manual or a textbook on the basic principles of monitor management and calibration.

This manual describes the following basic steps required to install and configure SMfit® Total Care:

- Connecting displays and photometers to the workstation.
- Using the installation routine (setup.exe).
- Configuring the workstation (e.g. entering the license key, creating users, specifing workstation properties and detecting connected displays and peripherals).
- Extracting monitor data from the displays.

SMfit® Total Care supports a broad range of displays and photometers. It offers both general features and differentiated options tailored to specific display models. Additional information is integrated in the SMfit® Total Care help files and the individual operating instructions accompaning the various displays and photometers from EIZO Display Technologies.

General terminology conventions

When describing basic installation and configuration concepts, this manual uses general terms and phrases to refer to devices such as displays, photometers, workstations and graphics controllers. Although the SMfit® Total Care detection and configuration procedures generally apply for all device classes, some models may require special measures. For additional information, please refer the literature accompanying the specific device.

When necessary, this manual may cite specific models or devices classes, e.g. to note exemptions.

The following terms are used in accordance with the general terminology conventions:

- "Displays" refers to all displays from EIZO Display Technologies.
- "2007 series displays" refers to displays from EIZO Display Technologies using the 2007 series electronics platform. At the time of this writing, this included the SCD 21310 and SMD 21510.
- "Non-EIZO displays" refers to displays not manufactured by EIZO Display Technologies.
- "Photometers" refers to all photometers from EIZO Display Technologies.
- "Luminance meters" refers to all EIZO Display Technologies photometers except the serial spot meter.

- Terms such as "workstation" and "host PC" refer to the computers upon which SMfit® Total Care is installed or runs.
- "Graphics controller" refers to the graphics board used in the workstation, regardless of the manufacturer.

See also

List of abbreviations (Page 63)

1.1 SMfit® Total Care Features

Product overview

High resolution displays are primarily used in critical applications such as medical diagnosis. Given the nature of such applications, proper set-up and calibration is essential. Monitor images can be influenced by factors such as timing, luminance and gamma function settings. As such, establishing reliable and consistent methods for the initial set-up, calibration, periodic re-calibration and conformance testing is critical for ensuring reliable, traceable quality over time. With this objective as a key focus of development, SMfit® Total Care provides the user with a complete quality assurance and display management solution.

The ability to display all gray levels accurately is a key determining factor for image quality. Brightness, contrast color and gamma settings also have an important influence on image quality. Manually calibrating a display can be time-consuming and costly, as proper calibration must generally be performed by well-trained service staff. Regulations in some countries already call for periodic consistency checks of luminance and gamma to ensure adequate image quality for diagnosis. As user groups continue to network and review findings, committees have begun drafting common standards to regulate the calibration requirements and kind of periodic testing that will be required in the future.

The SMfit® Total Care quality assurance tool was developed to simplify the initial calibration and automate consistency checks over time. It also supports remote consistency checks without requiring an external photometer or user on site. This feature is designed to dramatically reduce service costs and allows users to schedule and perform hands-off conformance tests on EIZO Display Technologies displays located throughout the network. SMfit® Total Care also supports asset management features and remote access to display parameters and test reports to allow users to design and implement a broad range of tests and reports within the scope of their local quality assurance programs.

SMfit® Total Care is structured into easily navigated sections for specifying preferences, managing monitors, performing quality and service actions and for reviewing quality reports. In addition to luminance calibration and conformance testing functions, SMfit® Total Care provides a wide array of functions to help service personnel adjust and diagnose the displays included in a quality assurance program. Users of earlier SMfit® packages will find all of the standard features they have become familiar with, with a new look and feel specially tailored for networked environments and ease of use.

As a web based application, SMfit® Total Care offers an intuitive graphical user interface (GUI) that is optimized for network usage. The software provides a number of useful graphical to easily recognize and track changes in calibration or monitor behavior. With the GUI, graphical cues and the use of standard web browsers, SMfit® Total Care is easy to learn and quickly master.

While the primary purpose of the software is to calibrate and manage EIZO monitors, the software is designed to adjust and calibrate monitors, regardless of the manufacturer, and adjust and set the gamma LUTs of the graphics controllers driving the monitors. Most EIZO Display Technologies monitors store the LUT directly in the monitor.

The overall goals in developing SMfit® Total Care was to provide a complete, platform independent, web based service tool that can be used on any monitor, with multiple graphic board types to set-up, manage, and validate display performance and consistency over time.

The main features of SMfit® Total Care Version 1.0 include:

- Web based, platform independent quality assurance tool
- Extensive calibration options such as luminance, gamma, color and uniformity
- Hands-on luminance and contrast calibration
- Hands off conformance testing using existing internal sensor circuitry
- DIN 6868-57 module for acceptance and RS-QL conformance tests available
- Supports EIZO displays as well as non-EIZO displays
- Supports EIZO photometers
- Supports connections with multiple monitors via serial or USB bus
- Compatible with multiple graphic board types

The main features of SMfit® Site Manager Version 1.0 include:

- Provides extensive access, test and control options for displays throughout the network
- Perform and schedule both manual and automated conformance tests on all displays
- Compatible with static and dynamic (DHCP client) TCP/IP addresses
- Extensive asset management options
- Remote access to display conformance logs
- Automated reporting and analysis of workstation and display performance
- Automated messaging via email upon user defined events (e.g. failed scheduled test)
- Calibration scheduling and management for displays and photometers
- Supports informed troubleshooting decisions prior to dispatching service personnel

Software installation 2

2.1 System Requirements

SMfit® Total Care comes with a highly automated installation routine to support quick and easy installation and optimized usability; nevertheless, certain platform and software requirements must be observed during the installation process.

Note

Only a limited number of configurations are tested during release

Due to the number of possible configurations and combinations of operating systems, displays, and graphic boards, only a limited number of configurations can be tested during release. Configurations were selected to test all software functions; however, performance cannot be guaranteed for every possible permutation. If unexpected issues are discovered with a particular configuration, please contact EIZO Display Technologies for support.

2.1.1 Operating systems

Note

The central database must operate on a 32 bit Windows XP workstation

At the time of this release, the central database was not configured for use on a 64 bit version of the Windows XP operating system. Although the SMfit® Total Care software runs on the 64 bit version of Windows XP, the central database must reside on a workstation running the 32 bit version of Windows XP. Due to this restriction, SMfit® Total Care would not run on a stand-alone 64 bit system at the time of this release.

SMfit® Total Care is a web-based software tool written in the Java programming language. Although Java is independent of specific operating systems, EIZO Display Technologies performs extensive tests to verify proper functionality on various platforms.

At the time of this release, SMfit® Total Care had been tested with the following operating systems:

Windows

- Windows XP (32 and 64 bit versions)

Depending on customer requirements and priorities, EIZO Display Technologies will verify the functionality with additional operating systems over time. Users requiring OS platforms or configurations that have not yet been tested should contact EIZO Display Technologies.

See also

SQL Database Server (Page 13)

2.1.2 Java Development Kit (JDK) 1.5

NOTICE
SMfit® Total Care has been tested and released for use with JDK 1.5 Update 14 only. The Java Runtime Environment (JRE) alone is not sufficient to run SMfit® Total Care. Do not uninstall or modify the Java Development Kit package installed with SMfit® Total Care.

SMfit® Total Care is a web-based software tool written in the Java programming language. Rather than using special versions of the software for specific operating systems, the Java Development Kit (JDK) allows the software to run irrespective of the underlying operating system. To support platform independence and incorporate its web based interface, SMfit® Total Care makes use of key components within JDK 1.5 (Update 14) such as the Java Virtual Machine (VM), the Java Runtime Environment (JRE) and portions of the Apache Web server software included in the JDK distribution.

The SMfit® Total Care installer automatically installs the Java Development Kit.

Note

Because the Java Development Kit is a Sun Microsystems product, users must accept and confirm the Sun Microsystems, Inc. Binary Code License Agreement for JDK 1.5 during the installation process.

Note

The Java Development Kit installed with SMfit® Total Care should not conflict with other JDK packages that may be installed on the local workstation.

See also

Installing SMfit® Total Care (Page 21)

Uninstalling SMfit® Total Care (Page 49)

2.1.3 SQL Database Server

SMfit® Total Care stores all data in a central SQL database server. The database can be located on a specific server or any workstation that can be accessed within the network via internet or intranet.

SMfit® Total Care retrieves its data for all connected workstations from the central database, identifying each workstation by its hostname.

Note

The central database must operate on a 32 bit Windows XP workstation

At the time of this release, the central database was not configured for use on a 64 bit version of the Windows XP operating system. Although the SMfit® Total Care software runs on the 64 bit version of Windows XP, the central database must reside on a workstation running the 32 bit version of Windows XP. Due to this restriction, SMfit® Total Care would not run on a stand-alone 64 bit system at the time of this release.

Note

Do not change the selected installation directory

To ensure constant and reliable data flow, the location of the central SMfit® Total Care database must not change once it has been specified. Because the host name of the individual workstations are used for communications with the central database, the computer names also should not be modified once they have been included in an SMfit® Total Care network.

See also

Installing SMfit® Total Care (Page 21)

Uninstalling SMfit® Total Care (Page 49)

2.1.4 Web Browser

As a true, web-based application, SMfit® Total Care takes advantage of current web browser technologies to offer a state of the art graphical user interface (GUI).

SMfit® Total Care has been tested and released to work with Mozilla Firefox and Microsoft's Internet Explorer (version 6 and 7).

2.1.5 Graphic Controller Compatibility

SMfit® Total Care imposes no specific restrictions on the graphic controller used, but to take full advantage of the software's capabilities, certain graphic boards are recommended and have been tested with the current release.

For example, DDC communications and the ability to load gamma correction tables can be very useful features when implementing a practical quality system for medical imaging environments. Given the innovation cycles of graphics controller manufacturers and the

broad range of cards, it is not possible to test the software with all available boards. The following graphic controllers have been tested with SMfit® Total Care:

NOTICE
For viewing DICOM 8 bit grayscale images on displays, SMfit® Total Care requires a static gray pallet on cards supporting this function to perform calibration properly.

Note

The brand names and model types listed below are registered trademarks of the respective companies.

EIZO Display Technologies

CAUTION
EIZO Display Technologies recommends always using the most recently released driver versions when installing or updating a system.

Compatible with the following EIZO Display Technologies graphics controllers:

- SDG 1612 D
- SDG 1612 DM
- SMG 1612 D
- SMG 1520 DM
- SMG 2125 D/S
- SMG 2125 DM
- SDG 2125 DM

Matrox

Compatible with the following Matrox graphics controllers:

- Matrox "G" series graphic boards,
- Matrox Med2MP graphic board.
- Matrox Med3MP graphic board.
- Matrox Med5MP graphic board
- Matrox Millenium P650
- Matrox Theatre Vue graphic boards:

  the first head of the display controller is connected to a display and the second head is connected to a projector. The projector shows the same picture as the display (clone mode) or a portion of the display (section magnification).

Matrox boards also support dual head applications in stretched mode.

CAUTION
The Matrox graphic board configuration tool ("Matrox PowerDesk") offers the functions "Open Program window " and "Center dialog boxes and message boxes" in the menu "Desktop Management". These options should not be used when SMfit® Total Care is running as they interfere with the proper mapping of the test patterns.

CAUTION
When using the Matrox P650 (tested driver: 1.11.0.114), please note the following limitations:
Photometers connected directly to the 1MP or the 2MP high-bright color display will not work properly. Please connect the photometer direct to the PC.

Note

- The MED series Matrox graphic controller boards were tested with the 1.11.0.90 driver. EIZO recommends always using the most recently released driver versions when installing or updating a system.
- Due to a violation of the DDC specification in the Matrox boards, the 2007 series displays are unable to communicate with Matrox boards via DDC channel. Users are advised not to use Matrox boards with 2007 series based displays such as the SMD 21510 or SCD 21310.
- The Matrox G550 uses DVI, but it does not support DDC communications.

NVIDIA

Compatible with the following nVidia graphics controllers

- NVIDIA FX 3400
- NVIDIA 980 XGL AGP
- NVIDIA FX 3000 AGP
- NVIDIA F FX 1500 PCI express,
- FX1700,
- FX 3400 PCI express,
- FX 3450 PCI express,
- FX 3500 PCI express,
- FX3700,
- FX 4500 PCI express
- NVIDIA NVS 285 PCI express
- NVIDIA Quadro 4 900 XGL

These boards have been qualified using driver version 9.1.3.6.

Note

Users using a dual head configuration with Windows 2000 might encounter some difficulties as the current driver for the NVIDIA boards only communicates with the first head. EIZO recommends not using the DDC port; rather, a serial port should be used with Windows 2000 for communication between the display and the computers

Note

nVidia recommends deleting the existing driver before installing new driver on an nVidia graphic board. If a new nVidia driver is installed, communication with the displays may be lost. If so, please perform the Autodetection function for the displays in the Device Settings menu. SMfit® Total Care will note the updated nVidia driver and update the appropriate SMfit® Monitor Driver accordingly. Confirm the re-installation to ensure that the SMfit® Monitor Driver is updated

2.1.6 Photometers

⚠ WARNING

The photometers are not designed for direct patient contact or use in close patient proximity. The photometers are intended for service use only.

More information

For more information about the photometers, please refer to their respective operating manuals. Information about legacy photometers is available in existing documents

SMfit® Total Care supports and automatically detects the following types of measurement devices offered by EIZO Display Technologies:

Serial Luminance Meter:

The legacy serial luminance meter was designed for use with monochrome CRT monitors only.

Serial Spot Meter:

The serial spot meter can be used with both monochrome and color LCDs. It is well suited for high-quality grayscale luminance calibration but does not support color temperature calibration.

Universal Serial Luminance Meter (USLM):

The USLM is a legacy photometer offering a convenient means to calibrate both the luminance and color temperature of monochrome and color CRT and LCD monitors. It has since been replaced by the advanced serial luminance meter as described below.

Advanced Serial Luminance Meter (ASLM):

The ASLM is the current general purpose photometer from EIZO Display Technologies. It offers a convenient means to calibrate both the luminance and color temperature of monochrome and color CRT and LCD monitors. This photometer was developed as a replacement for the USLM, offering faster response times and even greater measurement accuracy.

See also

Technical specifications (Page 51)

2.2 Hardware Configuration

2.2.1 Connecting a display from EIZO Display Technologies to a host computer

Using the methods described below, EIZO Display Technologies monitors can communicate with their respective hostcomputer. Using these connections, SMfit® Total Care can access and calibrate the displays via the workstation. Using the networking capabilities of the workstations, SMfit® Total Care offers a broad range of remote access and calibration services.

DDC communications for full functionality

Note

DDC operation is supported in Windows 2000 and Windows XP. DDC functionality was only validated with graphic boards and drivers from EIZO Display Technologies.

Many displays from EIZO Display Technologies support DDC communications via the DVI interface. SMfit® Total Care offers full local and remote support of displays connected to a host with a DDC enabled graphic board. With DDC communications, users need not run multiple cables for image transmission and communications between the display and the workstation.

DDC is currently supported by all 2, 3 and 5MP displays and a number of 1MP displays from EIZO Display Technologies. Please refer to the manual or datasheet to confirm DDC support.

USB communications for full functionality

Users can establish permanent connections to the host computer via USB on USB enabled displays from EIZO Display Technologies.

SMfit® Total Care offers full local and remote support of displays connected to the host via USB.

Serial bus communications for full functionality

Users can establish permanent connections to the host computer via a COM port on serial-bus enabled displays from EIZO Display Technologies. This allows users to daisy chain up to ten monitors connected to a single computer via one serial bus.

SMfit® Total Care offers full local and remote support of displays connected to the host via serial bus.

Serial port communications for local functionality

NOTICE
This option is not supported by the 2007 series displays, which offer a USB port rather than a serial interface port.

Note

The mini-DIN 6pin to 9pin D-sub adapter is included in the Serial Spot Meter, Advanced and Universal Serial Luminance Meter packages and in the cable kits

This connection method can be used with EIZO monitors that only support communication via the serial port or if no alternative communication means are available. Users can establish a connection between a COM port on the host computer and the serial port on the display. If needed, photometers can be connected to a second serial port (this method requires a null modem cable, with RXD and TXD crossed).

Because the serial port does not offer a permanent connection, scheduled SMfit® Total Care hands off conformance tests and remote access to this feature are not available. All other SMfit® Total Care functions are supported.

Some LCD monitors from EIZO Display Technologies only support communications on the serial port via a mini-DIN 6pin to 9pin D-sub adapter and a null modem cable with a crossed RXD and TXD. This method also requires an available COM port on the host computer.

See also

Cable Kits (Page 55)

2.2.2 No communication with the monitor – limited functionality

SMfit® Total Care allows users to calibrate the workstation and write a gamma LUT to the graphics controller, even in configurations that do not employ monitors from EIZO Display Technologies or where communications can not be established with the monitor directly.

Under these conditions, SMfit® Total Care should offer the following functionality:

- Adjust Lmin and Lmax using the monitor controls to set the contrast and brightness levels.
- Calibrate the gamma LUT (including color temperature calibration on color displays if the Advanced or Universal Serial Luminance Meter is used) and load the LUT to the graphics controller.
- Hands-On conformance check.
- Measure luminance values using an EIZO photometer connected via serial interface.
- Display test patterns that are dynamically adapted to the display resolution.

2.2.3 Laptop operation

NOTICE
Laptops are generally operated with optimized graphic controllers and may not support the SMfit® Total Care monitor driver package. Install the monitor driver package only if the internal graphics controller is able to support it. Users who are unsure are advised to make a backup image of the laptop for restoring it to the prior state.

Note

Test patterns must be available on the workstation supplying the video signal to the monitor to allow service personnel to manually display the images on each monitor.

SMfit® Total Care can be installed on a laptop computer. In this configuration, the laptop's serial port(s) can be used to connect to the monitor to perform some basic functions. These functions are limited to:

- Control all monitor parameters (e.g. LUT selection, save monitor parameters, etc.)
- Adjust Lmin and Lmax.
- Hands-On Conformance Check.
- Measure luminance values using an EIZO photometer connected via serial Interface.
- Perform diagnostics on monitor and workstation.

2.2.4 Connecting an EIZO monitor to a host computer

Note

EIZO Display Technologies offers four cable kits containing all of the necessary cables and instructions to connect the EIZO monitors using the special serial bus protocol described above or to connect legacy devices to modern PC architectures:

- EIZO Display Technologies part number 6GF6980-4AA for connecting the photometer and daisy-chaining up to 4 EIZO CRTs with RJ11 connectors.
- EIZO Display Technologies part number 6GF6980-2AA01 for connecting up to 2 EIZO 5 MP monitors (SMM 21200 & SMM 21201) with the display controller SMG 2125D/S.
- EIZO Display Technologies part number 6GF6980-1TA08 for connecting the photometer and daisy-chaining up to 3 Siemens LCDs with RJ11 connectors.
- EIZO Display Technologies part number 6GF6980-8WG15 is a RS-232-to-USB bus adaptor for use with workstations that may not offer a serial port. This kit comes with a cable and a specialized installation CD

The monitor and the host computer can be connected using the following methods

Null modem cable

A null modem cable (crossed RXD and TXD) is used to connect an RS-232 interface on the host computer with the RS-232 interface on the monitor.

RS 232-Bus connection

The RS-232 bus connection protocol allows monitors to be connected in serial and communicate with a single COM port on the host.

EIZO Display Technologies developed this unique protocol to allow a connection with multiple monitors in a daisy chain configuration (up to 10 monitors simultaneously).

Use an RS 232-RJ11 cable to connect the computer with the first monitor; RJ11 cables are used to connect the first monitor to the second monitor, the second to the third, and so on until the final monitor in the daisy chain is connected. The last monitor in the chain can be connected to a connection box, connected on the other side to a serial bus photometer for example.

The cable kits include the necessary instructions for connecting monitors in series.

DDC connection

Most EIZO Display Technologies displays support communications via the DDC channel. Because DDC communications are established via the DVI cable, no additional cables are required.

See also

Cable Kits (Page 55)

2.2.5 Connecting the EIZO Photometers

Note

To be recognized correctly, the photometer must be plugged in prior to set up (i.e. before detecting devices with SMfit® Total Care).

The photometers are "Hot plug" capable, i.e. the photometer should function even if the photometer was unplugged and reconnected between two operations.

For example, if SMfit® Total Care originally detected a photometer on monitor one, the photometer will still be recognized even if subsequently plugged in to monitor two.

The photometer is a serial device that communicates via RS 232.

The photometer can be connected directly to an open COM port on the host system, or connected to the photometer adapter box provided with the RS-232 bus cable kit, the Serial Spot Meter or Advanced and Universal Luminance Meter packages. The devices communicate on an RS-232 serial interface via the system's COM-port

Most flat panel displays from EIZO Display Technologies sport a mini-DIN PS/2 connector located on the side or bottom of the panel to provide users with a simple means of connecting the EIZO Display Technologies photometer to the display.

See also

Technical specifications (Page 51)

2.3 Installing SMfit® Total Care

This chapter describes the general procedures for installing SMfit® Total Care.

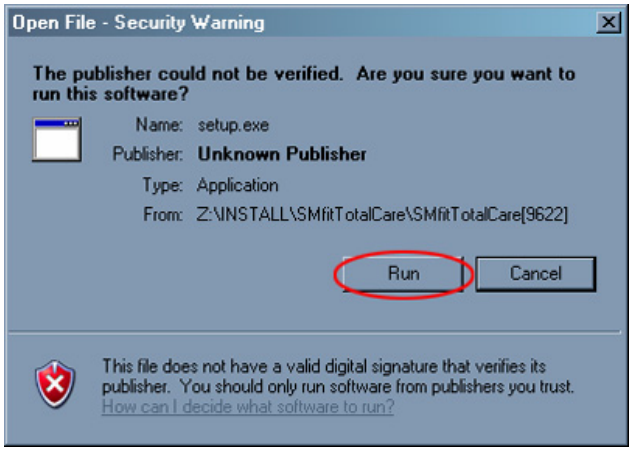
Note

The procedures documented in this section were run with the Windows XP operating system and are intended to serve as an example. Appearances may vary depending on the local system configuration.

2.3.1 Start the Installation Routine

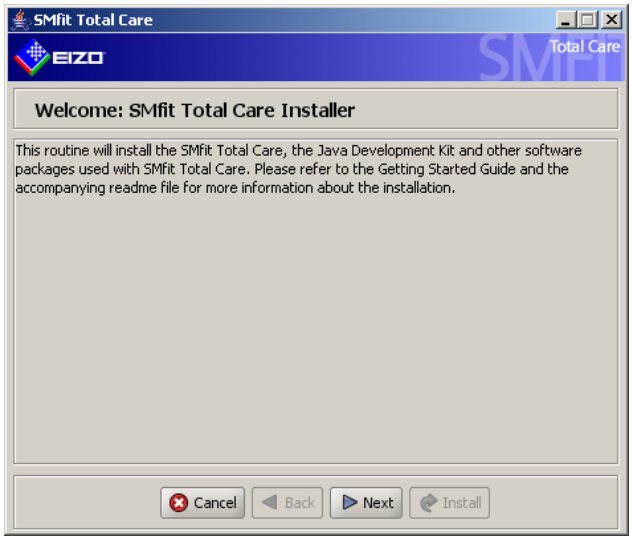
- Double click on the file `setup.exe` to start the SMfit® Total Care installation routine.

Depending on the settings, an "Unknown Publisher" security warning may appear indicating that the digital signature of the installation routine could not be verified:


Open File - Security Warning
The publisher could not be verified. Are you sure you want to run this software?
Name: setup.exe
Publisher: Unknown Publisher
Type: Application
From: Z:\INSTALL\SMfitTotalCare\SMfitTotalCare[9622]
Run
Cancel
This file does not have a valid digital signature that verifies its publisher. You should only run software from publishers you trust.
How can I decide what software to run?

- If such a warning appears, disregard it and click "Run" to begin installing.

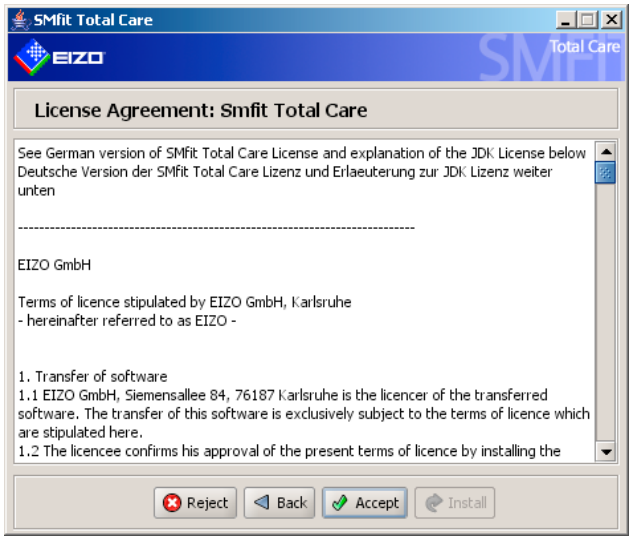
A "Welcome" window appears. This window may include additional information about the installation routine.


SMfit Total Care
EIZO
Total Care
Welcome: SMfit Total Care Installer
This routine will install the SMfit Total Care, the Java Development Kit and other software packages used with SMfit Total Care. Please refer to the Getting Started Guide and the accompanying readme file for more information about the installation.
Cancel
Back
Next
Install

- Click "Next" to continue with the installation routine.

2.3.2 Software License Agreements

A "License Agreement" window appears detailing the stipulations for installing and using SMfit® Total Care.


SMfit Total Care
EIZO
Total Care
License Agreement: Smfit Total Care
See German version of SMfit Total Care License and explanation of the JDK License below
Deutsche Version der SMfit Total Care Lizenz und Erlaeuterung zur JDK Lizenz weiter unten
EIZO GmbH
Terms of licence stipulated by EIZO GmbH, Karlsruhe
- hereinafter referred to as EIZO -
1. Transfer of software
1.1 EIZO GmbH, Siemensallee 84, 76187 Karlsruhe is the licencer of the transferred software. The transfer of this software is exclusively subject to the terms of licence which are stipulated here.
1.2 The licencee confirms his approval of the present terms of licence by installing the
Reject
Back
Accept
Install

- Read the license agreement carefully.
- Click "Accept" to accept the stipulations of the SMfit® Total Care license agreement and continue with the installation routine.
- Click "Reject" to terminate the installation routine without installing SMfit® Total Care.

Note

The SMfit® Total Care License Agreement window includes a German copy of the license text below the English language version. It also includes a German language description of the Binary Code License Agreement governing the use of Java Development Kit from Sun Microsystems, Inc. as described in the next section. The German language version is included as an unofficial and non-binding description of the governing English license text. The SMfit® Total Care license is also included as a text file in the installation directory. Both the English language Binary Code License Agreement for the Java Development Kit and the German language description text are also included in the installation directory.

2.3.2.1 Java Development Kit License Agreement

A "License Agreement" window appears detailing the stipulations for installing and using the Sun Microsystems Inc. Java Development Kit.

SMfit Total Care
EIZO
Total Care
License Agreement: Java Development Kit
Sun Microsystems, Inc. Binary Code License Agreement
for the JAVA 2 PLATFORM STANDARD EDITION DEVELOPMENT KIT 5.0
SUN MICROSYSTEMS, INC. ("SUN") IS WILLING TO LICENSE THE SOFTWARE IDENTIFIED BELOW TO YOU ONLY UPON THE CONDITION THAT YOU ACCEPT ALL OF THE TERMS CONTAINED IN THIS BINARY CODE LICENSE AGREEMENT AND SUPPLEMENTAL LICENSE TERMS (COLLECTIVELY "AGREEMENT"). PLEASE READ THE AGREEMENT CAREFULLY. BY DOWNLOADING OR INSTALLING THIS SOFTWARE, YOU ACCEPT THE TERMS OF THE AGREEMENT. INDICATE ACCEPTANCE BY SELECTING THE "ACCEPT" BUTTON AT THE BOTTOM OF THE AGREEMENT. IF YOU ARE NOT WILLING TO BE BOUND BY ALL THE TERMS, SELECT THE "DECLINE" BUTTON AT THE BOTTOM OF THE AGREEMENT AND THE DOWNLOAD OR INSTALL PROCESS WILL NOT CONTINUE.
Reject
Back
Accept
Install

- Read the license agreement carefully. Click "Accept" to accept the stipulations of the SUN Microsystems Inc. Java Development Kit license agreement and continue with the installation routine.
- Click "Reject" to terminate the installation routine without installing SMfit® Total Care.

Note

The SMfit® Total Care installation routine also installs the Java Development Kit (JDK) 1.5 from Sun Microsystems. During installation, the user is asked to confirm the license agreements for both JDK 1.5 and SMfit® Total Care. Please note that Sun Microsystems grants the right to use JDK 1.5 in accordance with their original Binary Code License Agreement for the JAVA 2 PLATFORM STANDARD EDITION DEVELOPMENT KIT.

In some documents, JDK 1.5 is referred to as "5.x". Both version designators refer to the same software package.

The SMfit® Total Care License Agreement window includes a German language description of the Binary Code License Agreement governing the use of the Java Development Kit from Sun Microsystems, Inc. The German language version is included as an unofficial and non-binding description of the governing English license text. Both the English language Binary Code License Agreement for the Java Development Kit and the German language description text are also included in the installation directory.

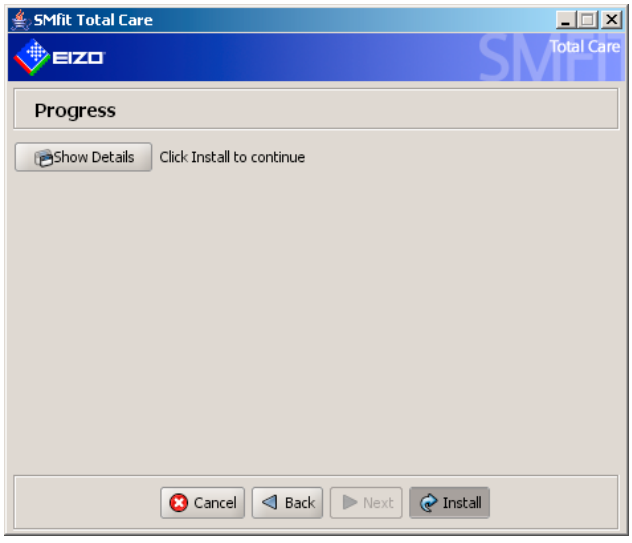
2.3.3 Specify the Installation Properties for the central SQL Database Server

PostgreSQL is the central database server SMfit® Total Care uses to store and access data. The central database server can either reside locally or at a designated central location

Note

The database should only be installed once in any given network

The database can be located on a specific server or any workstation that can be accessed within the network via internet or intranet. EIZO Display Technologies recommends installing the database only once per network and referring to the corresponding IP-address when installing the software on other workstations in the network.



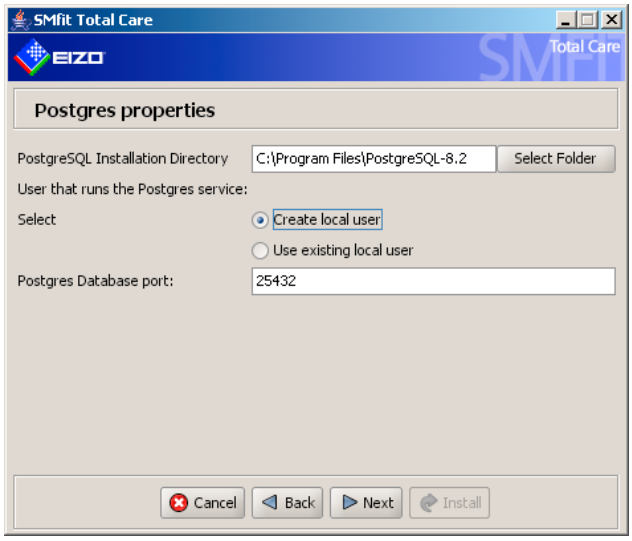
- Select "Yes" to install the central database server on the same workstation that SMfit® Total Care is being installed on.
- Select "No" to specify a workstation within the network upon which the designated central database server resides.
- Click "Next" to continue with the installation routine.

The following sub-sections describe the two installation scenarios:

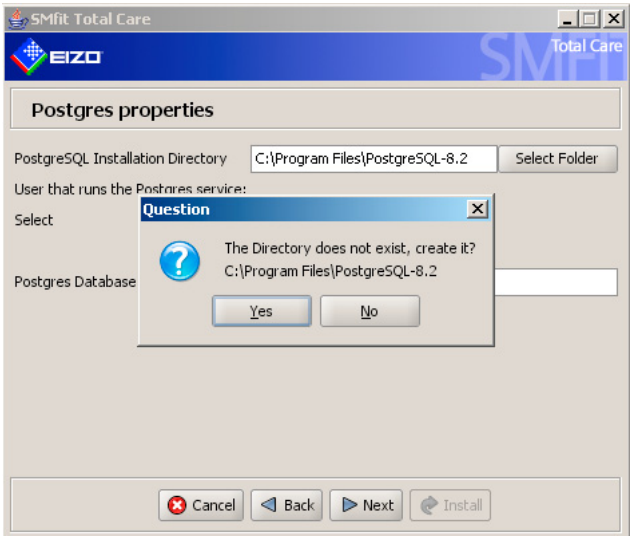
- Central database installed on the local workstation
- Central database located on an external workstation within the network

2.3.3.1 Define Properties of a Central Database to be Installed on the Local Workstation

In most applications, the database server is installed in the specified default directory. The Postgres database port is used for communications between SMfit® Total Care and the central database. This port is specified automatically. Advanced users may wish to select a user-defined directory for the installation, specify an existing local user account for the postgres service or define a specific port for the postgres database.

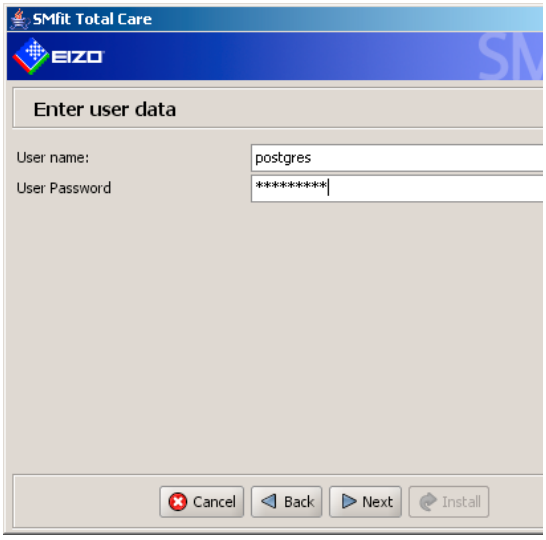


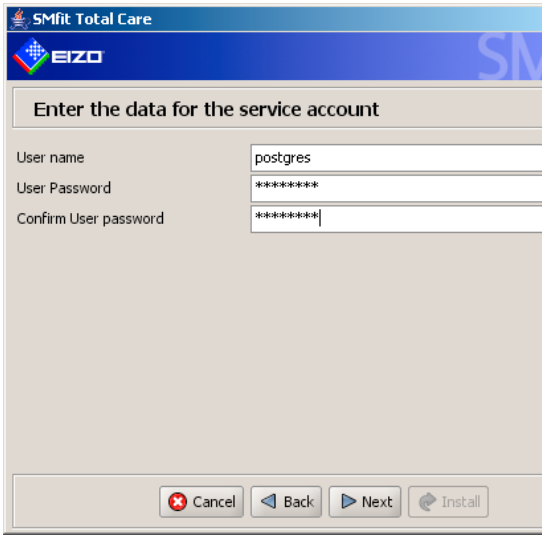
- To change the installation directory click "Select Folder" and select the desired directory.
- Specify if a local postgres user is created or if an existing local postgres user is used.
- Specify the postgres database port. Unless this port is already in use, EIZO Display Technologies recommends always using the default port. Contact the system administrator if this port is not available.
- Once the postgres properties have been specified click "Next" to continue with the installation routine.



- If the designated postgres installation directory does not exist click "Yes" to create it and continue with the installation routine.

If "create local user" was specified in the preceding configuration screen, specify the user name and password for the new local service account for the postgres database; otherwise, specify the user name and password of the existing postgres account. Setting up a new postgres account creates a new Microsoft Windows user account for the postgress service.





- Specify the user account and associated password. When entered in the designated field, the user password appears as a series of asterisks. When a new account is created, the password must be confirmed by retyping it exactly in the "confirm user password" field.
- Once the account data are specified, click "Next" to continue with the installation routine.

Note

The password must meet the safety requirements of the local system

Please note that the password must meet the safety requirements of the local system; otherwise, it will be rejected as an "Invalid password". If this is the case, try a more complex password or contact the system administrator for information about local password policies.

The user name and password are case sensitive!

Note

Do not change the selected installation directory

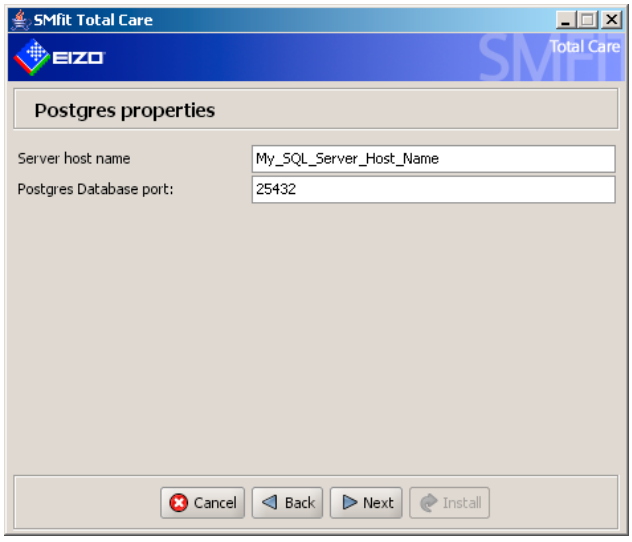
To ensure constant and reliable data flow for the SMfit® Total Care installation, the location of the central database must not be modified once it has been specified. Because the host name of the individual workstations are used for communications with the central database, the computer names also should not be modified once they have been included in an SMfit® Total Care network.

Note

The central database must be active and accessible when using SMfit® Total Care in a networked environment. Users should take appropriate measures to assure the necessary availability of the IT infrastructure.

2.3.3.2 Specify a Central Database Location in a Network

If the user elected not to install the central database on the local workstation, opting instead to use a central database located within the network, the host name or IP address of the server and the corresponding database port must be specified for the workstation upon which the central postgres database resides.



- Once the postgres properties have been specified click "Next" to continue with the installation routine.

Note

Do not change the selected installation directory

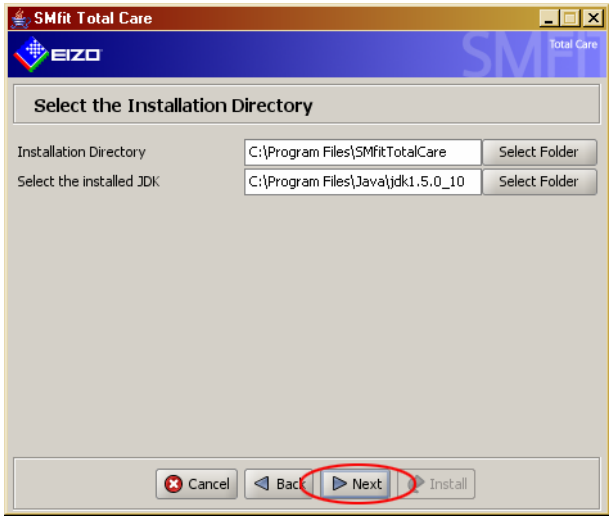
To ensure constant and reliable data flow for the SMfit® Total Care installation, the location of the central database must not be modified once it has been specified. Because the host name of the individual workstations are used for communications with the central database, the computer names also should not be modified once they have been included in an SMfit® Total Care network.

Note

The central database must be active and accessible when using SMfit® Total Care in a networked environment. Users should take appropriate measures to assure the necessary availability of the IT infrastructure.

2.3.4 Select the Installation Directory for SMfit® Total Care

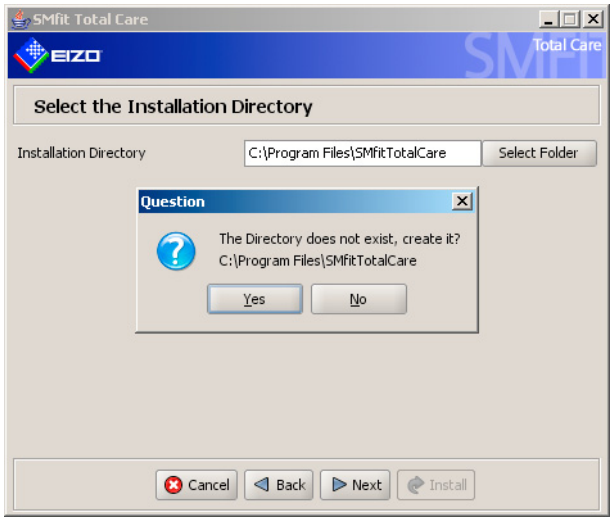
In standard installations, SMfit® Total Care is installed in the specified default directory. The installation routine automatically designates the appropriate directory for installing the Java Development Kit (JDK) used with SMfit® Total Care.



- To select another location, click "Select Folder" and select the desired directory.

The default installation directory is specified for the Java Development Kit (JDK).

- To specify a different location, click "Select Folder" and select the appropriate directory.
- Click "Next" to continue with the installation routine.



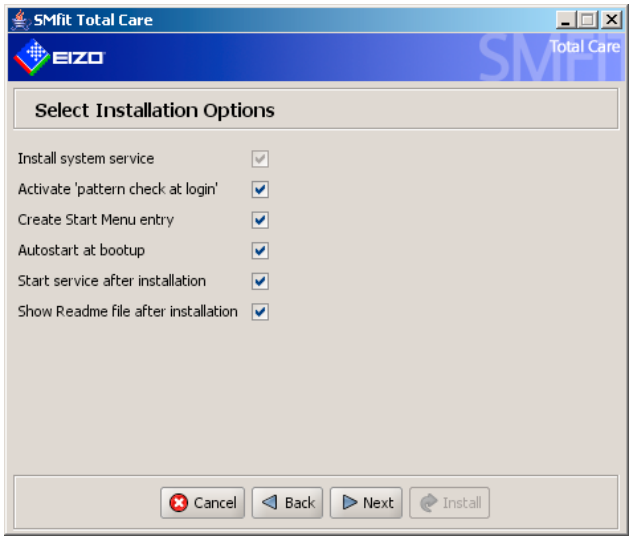
- If a designated installation directory does not exist, click "Yes" to create it and continue with the installation routine.

Note

Users must have administrative access to the installation directory specified for SMfit® Total Care.

2.3.5 Select SMfit® Total Care Installation Options

SMfit® Total Care offers a range of installation options, which can be selected prior to installing the software.



Item	Explanation
Install system service	This item is checked by default and is "grayed out" as it cannot be unchecked. This option installs SMfit® Total Care as a Microsoft Windows service. Service operation is vital for SMfit® Total Care's functionality.
Activate "pattern check at login"	With this item checked, a test pattern appears whenever a user logs into to the system. The test pattern also appears after 24 hours of continuous operation. The user is asked to verify the quality of the image. The results of these checks are stored in time stamped reports and can be used as part of a quality assurance system.
Create Start Menu entry	With this item checked, a number of SMfit® Total Care features are added to the Windows start menu.
Autostart at bootup	With this item checked, the SMfit® Total Care server is started automatically when Windows is started. The server is required for connecting to the application. If this box is unchecked, the server must be started manually to use SMfit® Total Care.
Start service after installation	With this item checked, the SMfit® Total Care service starts immediately after successful completion of the installation routine.
Show Readme File after Installation	With this item checked, SMfit® Total Care displays the readme file after successful completion of the installation routine.

With the exception of the "Activate 'pattern check at login'" option, all options are checked for installation by default.

- To select an installation option, check the associated checkbox. To deselect a selected option, uncheck the associated checkbox.
- Click "Next" to continue with the installation routine.

Note

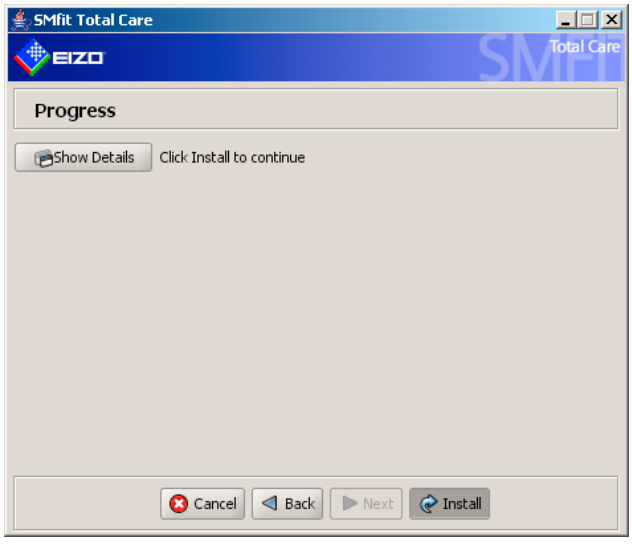
If the "Activate 'pattern check at login'" option is specified, it can not be deactivated with standard SMfit® Total Care commands. This is to ensure that quality assurance programs based on periodic image quality reviews can not be inadvertently shut down. If necessary, this option can be deactivated or reactivated using the system configuration utility **msconfig**.

To start the **msconfig** utility, start the "run" dialog from the Windows start menu and type "msconfig" in the run dialog.

Set or remove the check mark associated with "patterncheck-runner" in the Startup Item column within the **msconfig** utility.

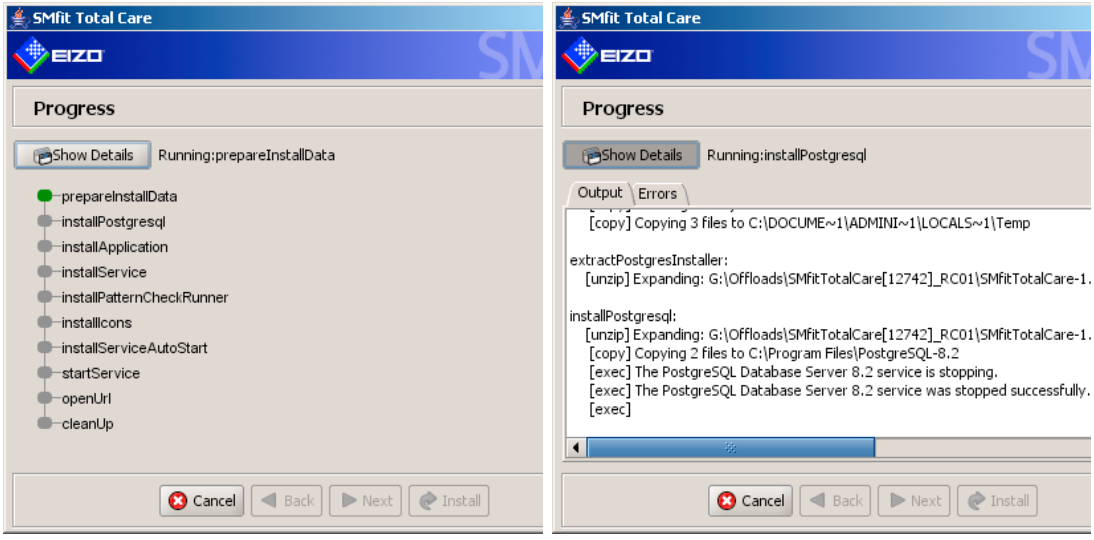
2.3.6 Install the SMfit® Total Care Package

With the information required to install the SMfit® Total Care software package specified in the preceding steps, the installation routine can now initiate the actual installation. Up until this point, no software was installed on the designated workstation, and now changes were made to the workstation configuration.



- Click "Install" to install the software as specified in the preceding steps.

During the installation of SMfit® Total Care, an overview of the individual installation steps appears to provide the user with a progress update throughout the routine. The installation routine may take some time to finish and depending on the system's performance, actual progress may not be visible as the installation routine runs in the background.

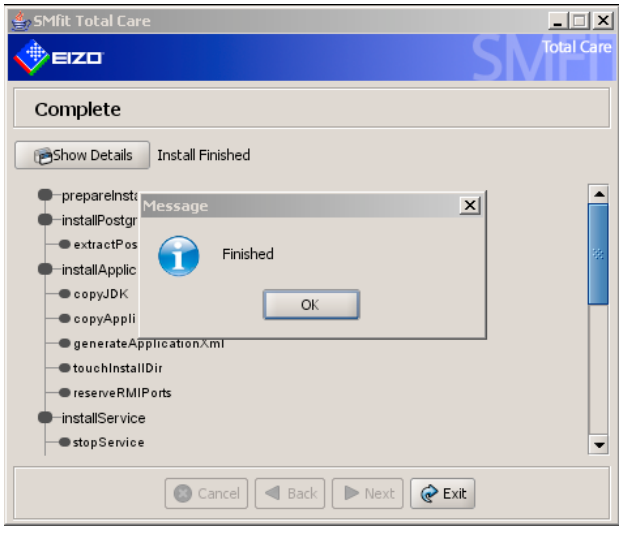


- Click "Show Details" to see an even more detailed report of installation activities.

Note

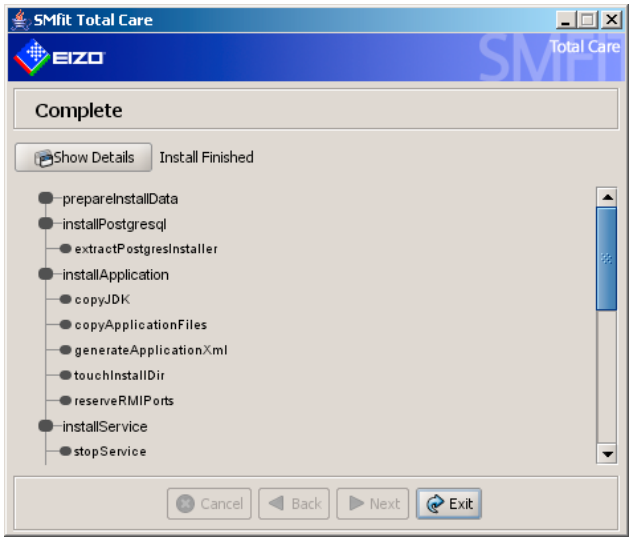
The Show Details window is generally only relevant for SMfit® debugging. The Error tab may contain messages generated during the installation routine. Generally, such notes do not reflect the occurrence of actual installation errors; rather, they indicate unexpected circumstances encountered during installation. If an actual error occurs, the installation is generally terminated with an error message in a pop-up window.

A "Finished" message box appears when all SMfit® Total Care packages have been fully installed.



- Click "OK" to close the message box.

2.3.7 Installation complete



- Click "Exit" to leave the setup program.

If the corresponding installation option was checked, the readme file appears in a new browser window. The readme offers users updated information about the software and should be reviewed prior to using SMfit® Total Care.

Note

If the "Show Readme File after Installation" option was specified, the readme file may appear on top of the installer routine windows. If necessary, minimize the browser to reveal and close the installation routine.

If "Create start menu entry" was checked during setup, an SMfit® Total Care icon is added to the desktop and the software and related services can be started from the start menu. If this option was not specified, the software can be started using the installation directory. It may also be uninstalled using the control panel "Add or Remove Programs" function.

2.4 Initial Configuration of SMfit® Total Care

SMfit® Total Care comes with extensive, integrated documentation to help users navigate the software. This chapter describes the initial configuration steps required when running SMfit® Total Care for the first time.

If SMfit® Total Care was installed on a network using an existing central database, the user need not enter an SMfit® Total Care license key nor create users as described. in the first two sections of this chapter.

2.4.1 Enter the SMfit® Total Care License Key

Note

EIZO Display Technologies recommends strictly safeguarding access to the license key.

When installed with the central database, SMfit® Total Care requests a license key when started for the first time. A license key is included in the scope of delivery of the individual SMfit® Total Care packages and is shipped in the accessory packages with displays from EIZO Display Technologies. Users downloading the software from the Display Technologies website can obtain a license key either by registering online or contacting the service hotline.

Different license keys offer different levels of functionality.

EIZO
Total Care
Enter license key
You are running SMfit Total Care for the first time.
Please enter your license key.
ABCDE-FGHIJ-KLMNO-PQRST-UVWXY
Ok
SMfit Total Care 1.0-RC01(12742), Copyright Eizo GmbH © 2008 - All rights reserved

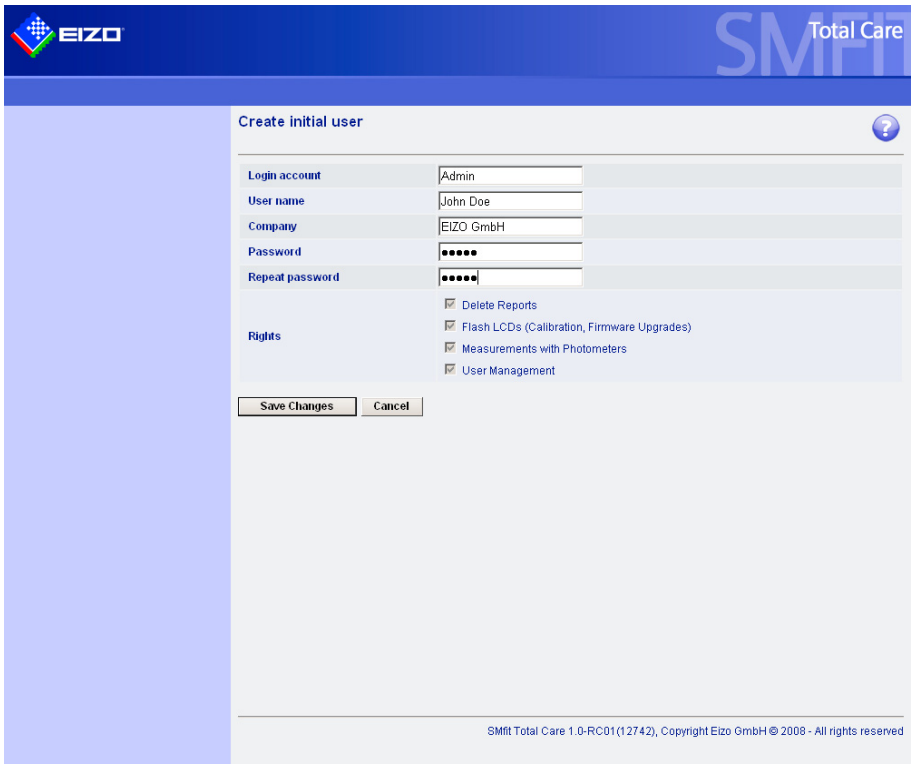
- Enter the SMfit® Total Care license key and press OK to continue the initial configuration.

See also

User Management Preferences (Page 48)

2.4.2 Create the Initial SMfit® Total Care User Account

SMfit® Total Care comes with an integrated user management facility to allow and restrict user access to various software features. When installed with the central database, an initial user is created during configuration. The initial user is automatically granted access to all software features offered for the license key described in the preceding section. As such, this represents the highest level user supported in a SMfit® Total Care system.



- Specify the initial user login account
- Specify the user name associated with the initial login account
- Specify the user's company name (optional)
- Enter a password and repeat the password associated with the initial login account
- Click on the "Save Changes" button to save the user settings

Note

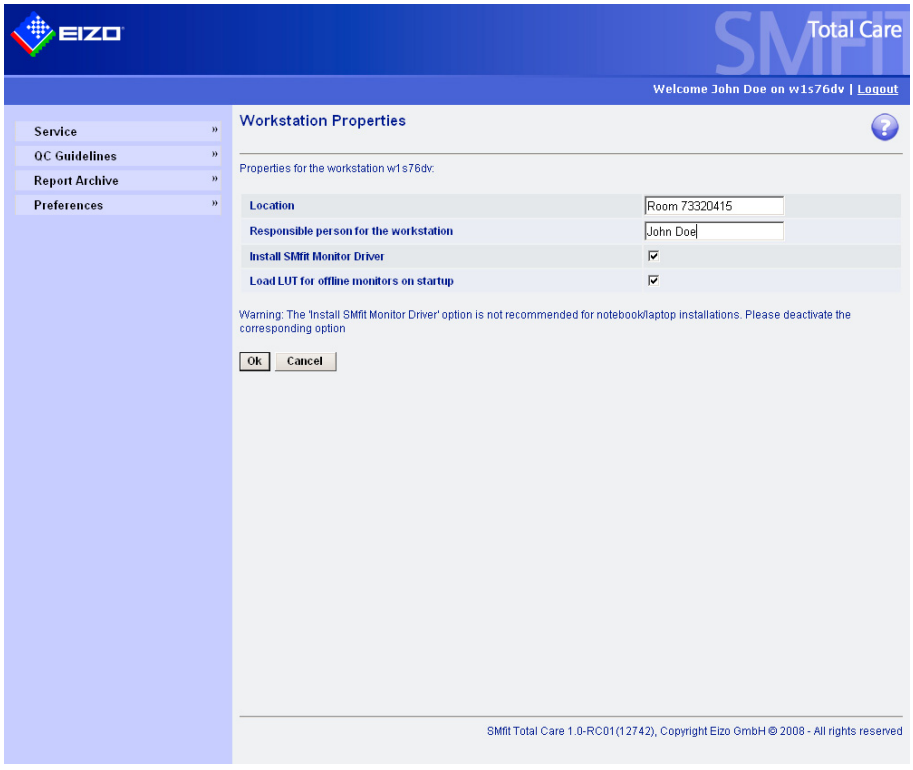
If the highest level user password is lost, there is no master password to restore access to the database and/or the SMfit® Total Care data. The SMfit® Total Care software and the central base must be uninstalled and a new installation performed. In such a case, all report and network configuration data are lost. EIZO Display Technologies recommends strictly safeguarding access to the initial user password.

See also

User Management Preferences (Page 48)

2.4.3 Define the Workstation Properties

The Workstation Properties window appears to allow the user to define and configure SMfit® Total Care for the workstation upon which it was installed.


EIZO
SMFIT Total Care
Welcome John Doe on w1s76dv | Logout
Service
QC Guidelines
Report Archive
Preferences
Workstation Properties
Properties for the workstation w1s76dv:
Location
Room 73320415
Responsible person for the workstation
John Doe
Install SMfit Monitor Driver
Load LUT for offline monitors on startup
Warning: The 'Install SMfit Monitor Driver' option is not recommended for notebook/laptop installations. Please deactivate the corresponding option
Ok
Cancel
SMfit Total Care 1.0-RC01(12742), Copyright Eizo GmbH © 2008 - All rights reserved

- Enter the location of the workstation (e.g. room number, building or address). This is an optional entry, but it can be useful for identifying the workstation when accessed remotely within an SMfit® Total Care network.
- Enter the name of the person responsible for the workstation. This is an optional entry, but it can be useful for identifying a contact person responsible for the workstation.
- Specify whether or not the SMfit Monitor Driver is installed. The SMfit Monitor Driver is generally required to allow communications with the displays and peripherals via DDC.
- Specify whether the LUT information is loaded for "offline" monitors. Offline monitors are monitors without data communication to SMfit TC. The calibration data of these monitors will be stored on the PC. If this box is checked, SMfit® Total Care automatically loads the LUT into the graphics board on start up of the PC.
- Click on the "OK" button to save the user settings

CAUTION
Laptops are generally operated with optimized graphic controllers and may not support the SMfit® Total Care monitor driver package. Install the monitor driver package only if the graphics controller able to support it. Users who are unsure are advised to make a backup image of the laptop for restoring it to the prior state.

See also

Laptop operation (Page 19)

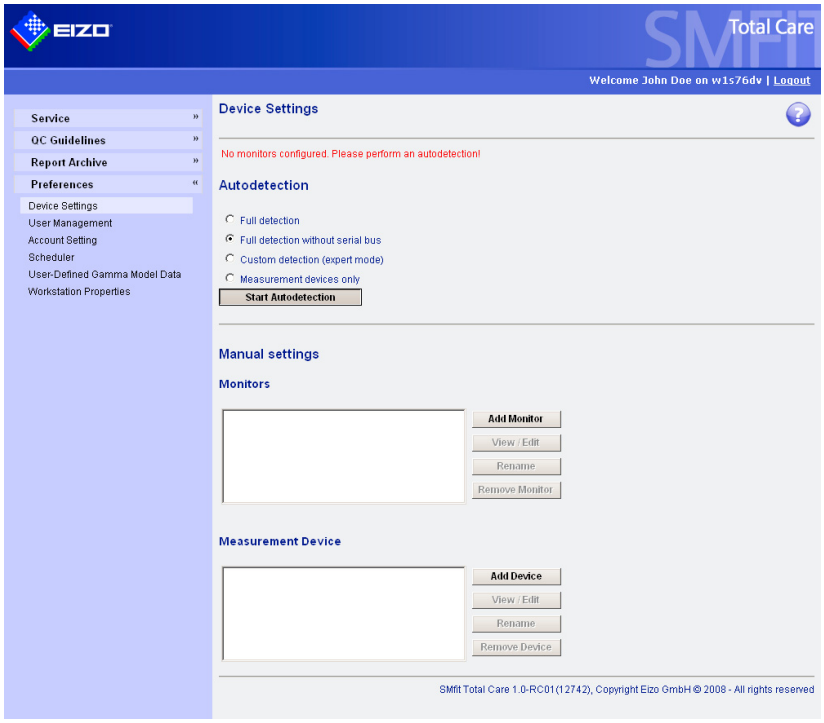
2.4.4 Detect Monitors and Peripheral Equipment Connected to the Workstation

The Preferences window appears to allow the user to detect and configure devices connected to the workstation. EIZO Display Technologies recommends the Auto-Detection feature for automatically detecting the monitors and peripheral equipment. This feature recognizes the resolution of the monitors and the number of devices connected to the workstation. It also detects how the devices are connected: e.g. via DCC, USB, serial bus, RS-232 or not at all.

SMfit® Total Care supports a range of auto detection options, allowing users to narrow the search criteria when detecting devices connected to the local workstation:

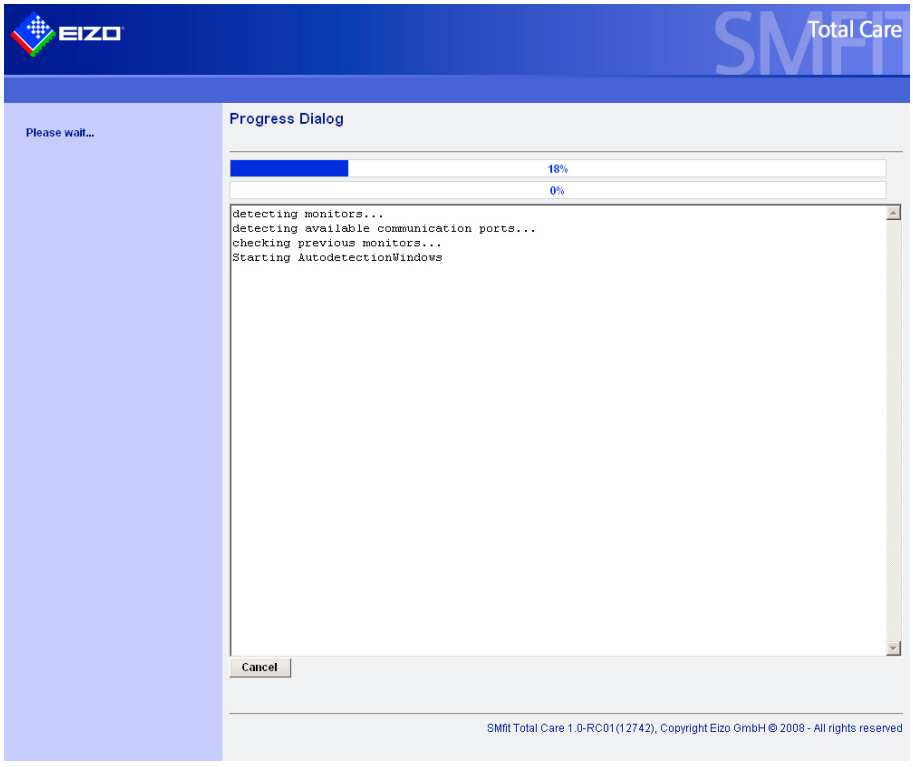
- "Full detection" allows users to search for connected devices without specifying any search criteria. This option supports searched for devices connected via serial bus. If a serial bus configuration is used, the bus ID parameters must be set for each monitor and all devices should be connected on the bus prior to starting the Auto-Detection function. Please refer to the cable set instructions for more details.
- "Full detection without serial bus" allows users to search for devices connected via DDC, USB or RS-232. The serial bus is not searched, thus reducing the detection time.
- The "custom detection" option allows users to specify the individual devices to search for. This option opens up a range of selection criteria, including the number and type of monitors and measurement devices, the connection types and the maximum search times. Please refer to the online documentation in SMfit® Total Care for more details.
- Select "measurement devices only" to restrict the search to peripheral measurement devices such as photometers. This can be useful when a photometer has been replaced and needs to be updated to be used.

Advanced users can also specify connected monitors and peripheral equipment manually by pressing the "Add Monitor" or the "Add Device" buttons respectively. Please refer to the online documentation in SMfit® Total Care for more information about this feature.

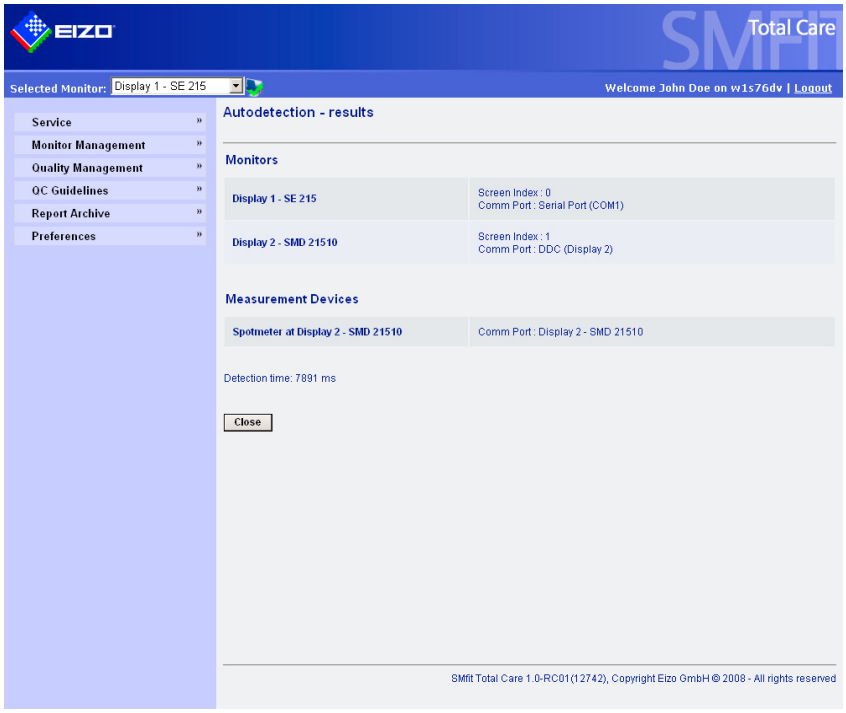


- Click on "Start Autodetection" to begin detecting monitors and peripheral equipment connected to the workstation.

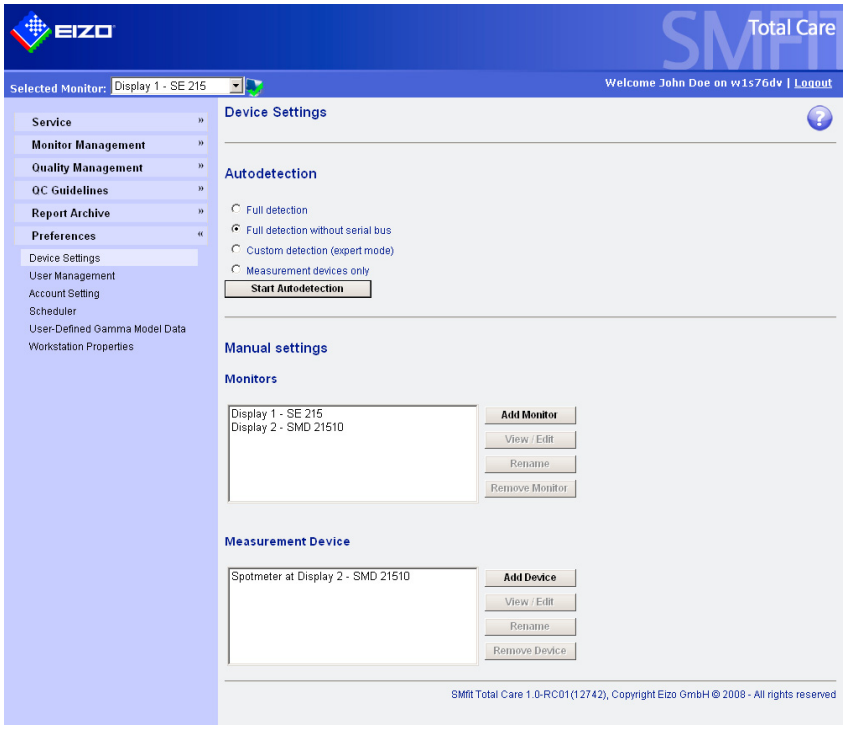
During the Autodetection routine, SMfit® Total Care presents an overview of ongoing actions. Depending on the workstation configuration, monitors may blink or briefly go blank during the Autodetection process. This is a function of communications tests, graphic controller board functionality and monitor type and should not be cause for alarm. The duration of the detection process depends largely on the configuration and performance characteristics of the workstation.



Once the Autodetection routine is completed, SMfit® Total Care presents an overview of the detected monitors and measurement devices.


EIZO
Total Care
Selected Monitor: Display 1 - SE 215
Welcome John Doe on w1s76dv | Logout
Service
Monitor Management
Quality Management
QC Guidelines
Report Archive
Preferences
Autodetection - results
Monitors
Display 1 - SE 215
Screen Index : 0
Comm Port : Serial Port (COM1)
Display 2 - SMD 21510
Screen Index : 1
Comm Port : DDC (Display 2)
Measurement Devices
Spotmeter at Display 2 - SMD 21510
Comm Port : Display 2 - SMD 21510
Detection time: 7891 ms
Close
SMfit Total Care 1.0-RC01(12742), Copyright Eizo GmbH © 2008 - All rights reserved

- Click on the "Close" button to return to the Device Settings menu.



Once the monitors and peripheral devices have been set up for the workstation, the initial configuration steps are complete and user's can begin normal operations with SMfit® Total Care.

More information

Please refer to the online help for more information about detecting generic display types (i.e. those that are not automatically recognized by SMfit® Total Care.

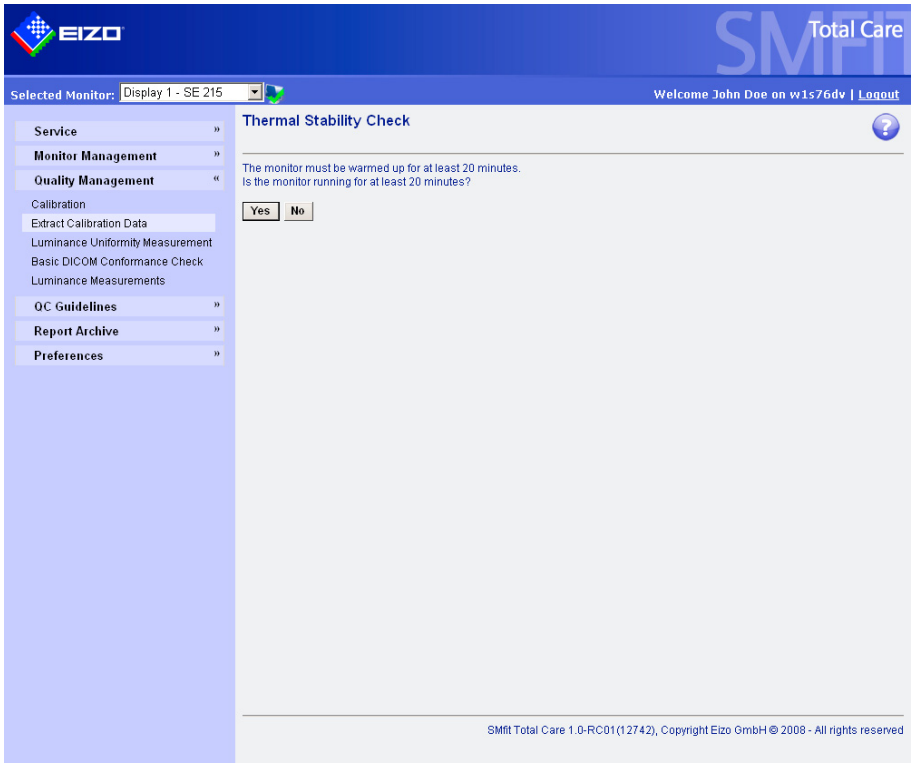
When using equipment outside the scope of standard SMfit® Total Care configurations, please refer to the documentation from e.g. the generic monitor or the graphic controller manufacturer for more information on communication protocols and other device parameters.

2.4.5 Extract Calibration Data from the Detected Monitors

In general, all displays from EIZO Display Technologies are calibrated in the factory using the highest precision calibration devices available. The calibration data is stored in multiple lookup tables maintained directly in the display. This keeps installation times to a minimum as the displays need not be calibrated during installation. To take advantage of the factory calibration, SMfit® Total Care installation can extract the calibration data directly from the detected monitors. By extracting the calibration data from the displays, SMfit® Total Care is made aware of the displays parameters and can offer hands-on and hands-off conformance testing options.

To extract the calibration data from the detected monitors, choose the monitor to extract data from in the selector box located in the user bar on upper left of the screen. Once the monitor has been selected, click on the Extract Calibration Data option in the Quality Management menu.

On some display models, SMfit® Total Care asks the user to confirm that the display has been operating for at least 20 minutes prior to extracting data. This thermal stability check is performed to ensure that the backlight has reached a standard operating temperature prior to measuring the backlight reference value using the internal stability sensor (ISS)

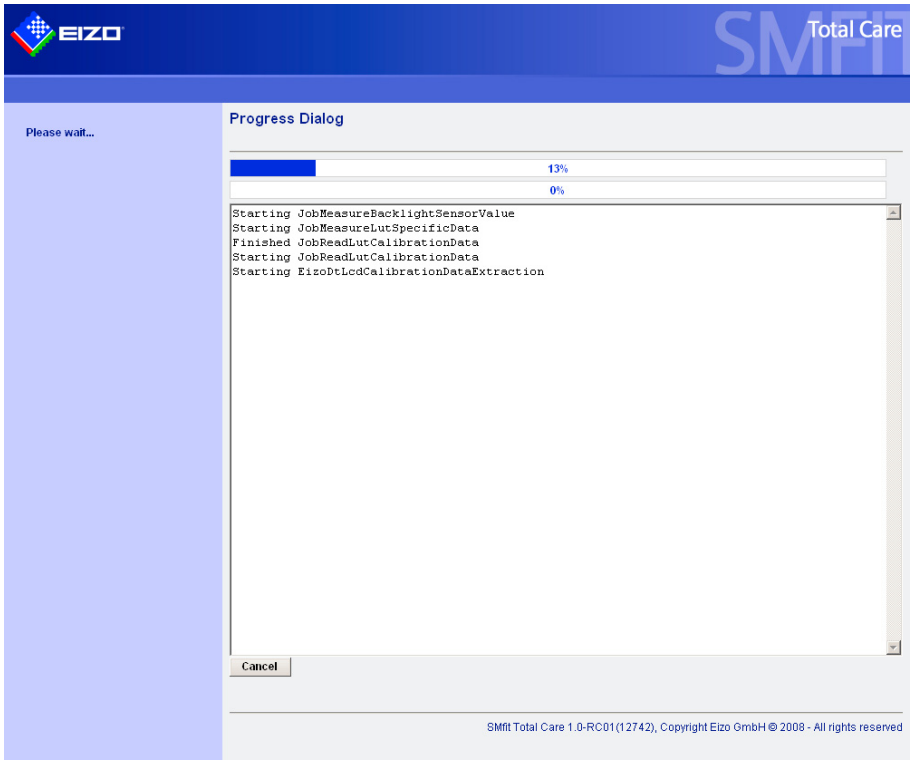


- Click on the "No" button if the display has not been operating for at least 20 minutes.
- Click on the "Yes" button to confirm that it has been operating for at least 20 minutes.

Note

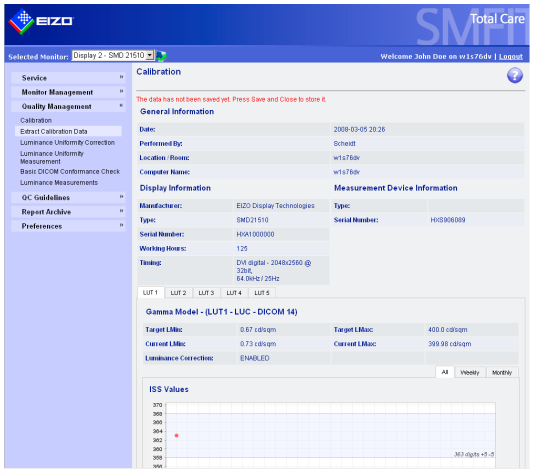
- If the monitor is not warmed up in advance, the backlight reference measurement taken during the extraction process will not accurately reflect the displays actual behavior when it achieves its normal operating temperature.
- If the "No" button is clicked during the thermal stability check, SMfit® Total Care asks the user to wait until the monitor has had time to warm up.
- In addition to the calibration data, displays using the 2007 series electronics also maintain the backlight reference value directly in the display. As such, thermal stability is not queried for these display models.

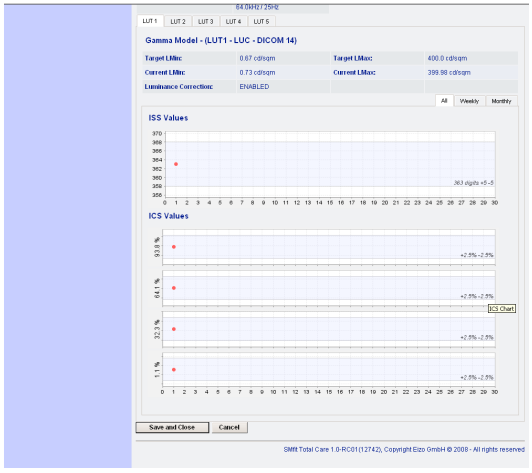
Once thermal stability has been confirmed, SMfit® Total Care presents a progress dialog window as it extract the calibration data from the specified monitor. Depending on the display type, the display brightness may fluctuate and the monitor may go blank or turn white while the backlight reference value is measured.



- Click on the "Cancel" button to terminate this process. If cancelled, SMfit® Total Care will not have access to the internal calibration data.

Once the calibration data has been extracted from the monitor, SMfit® Total Care presents a calibration report derived from the extracted data. The information included in these reports will vary depending on the display model.

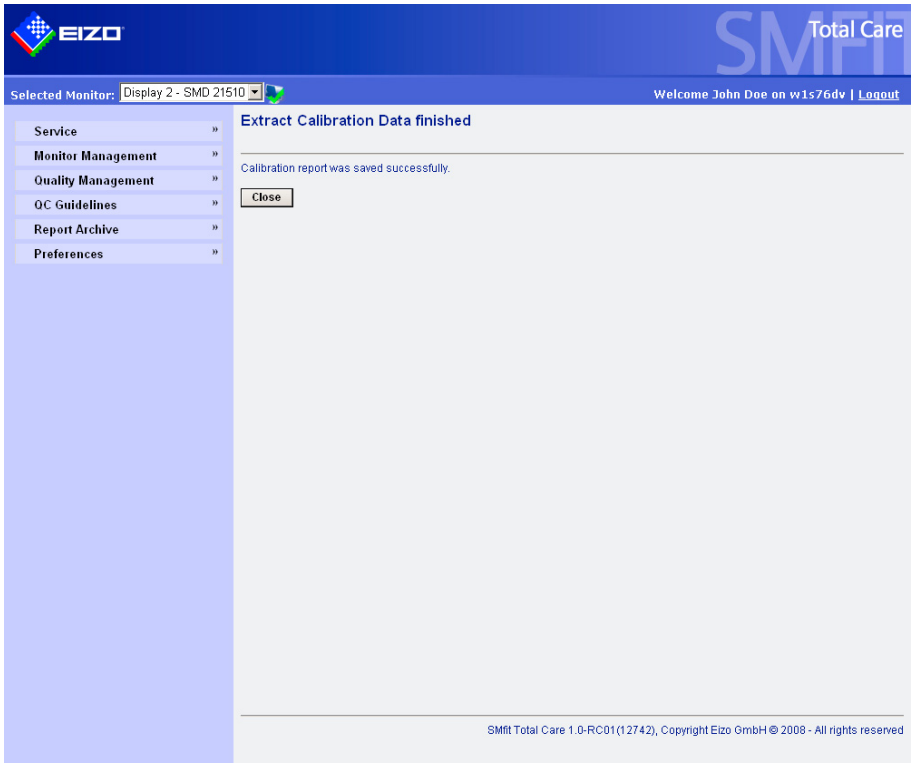




- Click on "Save and Close" to save the extracted calibration data to the central SMfit® Total Care database. Once the calibration data is extracted, the Extract Calibration Data option no longer appears in the Quality Management menu.

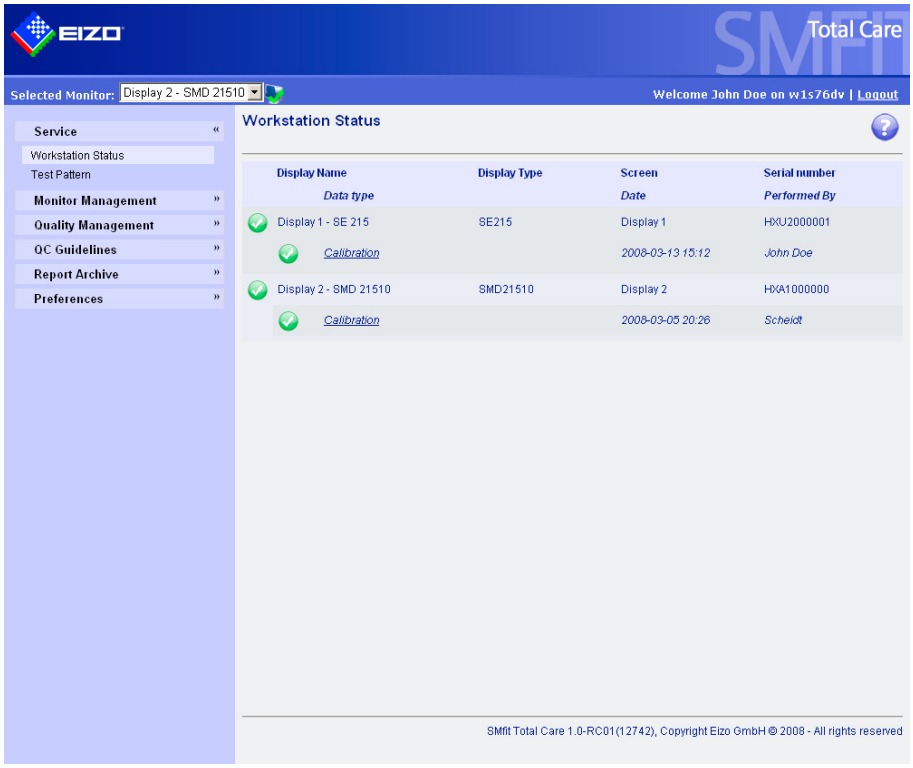
- Click on "Cancel" to close the report without saving the extracted calibration data. If the calibration data is not saved to the central database, and SMfit® Total Care can not establish the display's calibration status until the data is either extracted or the display is recalibrated. Until then, the Extract Calibration Data option continues to appear in the Quality Management menu and the Hands On and Hands Off checks are not supported.

Once the calibration report is closed, SMfit® Total Care reports if the report was successfully saved. If an extraction error occurs, SMfit® Total Care diverts to the Device Communication Status window to inform the user of the current status and potentially recommend reviewing the connection and settings.



- Click "Close" to close the confirmation screen and return to the Workstation Status screen.

Once the calibration data has been extracted from all detected monitors, the Workstation Status screen should include data for all detected monitors on the overview screen.



2.5 First Steps with SMfit® Total Care (Key Operational Concepts)

SMfit® Total Care is a web based tool based on standard concepts and devices seen in myriad web based applications. Although it is highly intuitive, this chapter presents a few concepts that may be useful in helping new user get acquainted with the use of the software.

2.5.1 SMfit® Total Care Informational Navigating (Top Horizontal Frames)

At the top of the browser, title bar identifies the SMfit® Total Care software package.

The user bar, located just below the title bar, allows users to specify an active monitor from the drop-down selection box. Just to the right of the selector box, users can quickly check the status of device communications by clicking on the green checkmark icon. On the right hand side of this bar, the current SMfit® Total Care user is welcomed to the workstation and is offered a link to logout of the program.

Finally, the window title frame located just below the user bar displays the title of the current active screen. Each window comes with an online help button located on the right hand side of the window title frame and depicted as a large white question mark in a blue circular field. When this button is clicked, an online help text appears in a new browser window to provide more details about the SMfit® Total Care screen currently being viewed.

Note

Information displayed in the current window may only be related to the monitor currently selected from the drop down box. Please ensure that the intended monitor is selected.

More information

The online help texts are the primary source for information about SMfit® Total Care. Please refer to the corresponding online help text for a more detailed description of the individual software windows. Some online texts are interlinked, allowing users to follow the links to other related online help documentation. Close the online help browser and click on the online help button if the current text is not related to the current window view.

2.5.2 Navigating the SMfit® Total Care Function Menus

SMfit® Total Care groups the function into six menus located in the light blue field on the left hand side of the browser window. The menus can be collapsed or expanded by clicking on the menu title. SMfit® Total Care offers the following function menus:

Service Menu

The Service menu consists of the sub-menus *Workstation Status* and *Test Pattern*. The *Workstation Status* menu serves as the main page, providing an overview of the connected monitors and peripheral equipment. *Test Pattern* offers users a collection of test patterns that can be used to review the monitor image quality.

Monitor Management

The *Monitor Management* menu consists of the sub-menus *LUT selection, Monitor Information, Backlight/ISS, Temperature, Firmware Upgrade, FPGA Upgrade, Create Backup* and *Restore Backup*.

Quality Management

The *Quality Management* menu consists of the sub-menus *Calibration, Luminance Uniformity Correction, Hands On Check, Hands Off Check, Luminance Uniformity Measurement, Basic DICOM Conformance Check* and *Luminance Measurements*.

QC Guidelines

The *QC Guidelines* menu consists of the sub-menus *DIN 6868-57 Acceptance Test* and *RS-QL Conformance*.

Report Archive

The *Report Archive* menu contains the sub-menu *All Reports Overview*.

Preferences

The *Preferences* menu consists of the sub-menus *Device Settings, User Management, Account Setting, Scheduler, User-Defined Gamma Model Data and Workstation Properties*.

Note

The menu contents are dependent upon the features supported by the individual monitors, the user permissions granted to individual accounts and the license key entered during the initial configuration. Whether or not the individual menus described in this section appear will vary in accordance with these factors.

More information

The online help texts are the primary source for information about SMfit® Total Care. Please refer to the corresponding online help text for a more detailed description of the individual menus.

2.6 User Management Preferences

This chapter provides a brief overview of the integrated user management facility included to allow and restrict user access to various software features offered in SMfit® Total Care. In addition to the features supported by the individual display models, SMfit® Total Care uses a two tiered structure to grant or deny access to standard and extended feature sets. Access is based on the license key entered during installation and the user permissions granted to the current user as detailed in the User Management Preferences menu.

The following software features are available, depending on the permissions granted to the user and the feature set offered with the corresponding license key:

Software Feature	Description
Delete Reports	Allows users to delete SMfit® Total Care reports. This feature is offered in the extended feature set.
Flash LCDs (Calibration, Firmware Upgrades)	Allows users to calibrate displays and update the firmware of displays supporting this function. This feature is offered in both the standard and the extended feature set.
Measurements with Photometers	Allows users to take measurements with supported external photometers. This feature is offered in the extended feature set.
User Management	Allows users to create, delete and edit user accounts. This feature is offered in both the standard and the extended feature set.

CAUTION
The ability to Flash LCDs should only be granted to trained and authorized users. Improperly calibrating a display can cause image details to be lost and reduce the ability to perform a diagnosis on the display. Similarly, updating the firmware represents a major change in an installation and can render a display non-functional if not done properly.

Note

The initial user account is created with access to all software features. Although SMfit® Total Care does not restrict the allocation of these permissions, system administrators are advised to carefully consider how these permissions are allocated based on the actual tasks the individual users are required to perform.

Note

Users with User Management rights may create new accounts, delete existing accounts or modify the permissions of existing user accounts. EIZO Display Technologies recommends restricting this feature to trained, high-level users with administrative rights.

2.7 Uninstalling SMfit® Total Care

This chapter describes the general procedures for uninstalling SMfit® Total Care.

CAUTION
Please ensure all necessary backup measures prior to uninstalling SMfit® Total Care. Detailed descriptions of information technology concepts such as network administration, database management or data security are beyond the scope of this Getting Started guide. Contact the system administrator for additional information on such topics.

The uninstall routine is oriented on standard practices and can be initiated with the following simple steps:

- Select "Uninstall" from the SMfit Total Care group from Programs in the Windows start menu
- Press the "Next" button on the SMfit® Total Care Uninstaller window that appears.
- In addition to the SMfit® Total Care and JDK software packages, the uninstall routine asks if the PostgresSQL database should be removed. Select "No" (default setting) to leave the central database installed or "Yes" to remove the database. If the PostgresSQL database is removed, all SMfit® Total Care workstation data are removed as well. Press the "Next" button to proceed to the next uninstall routine step.
- Press "Uninstall" in the Uninstaller Progress window. Press the "Show Details" button to toggle between more or less detailed uninstall information during the uninstall routine.

The uninstall routine confirms its completion with a "Finished" message.

- Click on the "OK" button to close the popup message and exit to close the uninstall routine.

The SMfit® Total Care installation directory is not removed during the uninstall routine.

Note

If the PostgresSQL database is removed, all SMfit® Total Care workstation information is deleted. Users wishing to restore the central database information should take appropriate measures to back up the database contents for future retrieval.

Note

The SMfit® Total Care installation directory can not removed until the workstation has been rebooted. If SMfit® Total Care is no longer to be used on the workstation the entire directory should be removed after rebooting the system.

Technical specifications

3

3.1 Serial Luminance Meter

The following specifications apply to measurements made under the following conditions:

- CRT display with P45 phosphor set
- Light output set at 214 cd/m²
- Integration time set at 100 fields

Serial Luminance Meter	
Accuracy to internal NIST standard	± 2 % (photometer) ± 4 % (overall system)
Measurement Range	0 … 3750 cd/m²
Repeatability (same instrument)	Y: < 1 %
Repeatability (inter-instrument)	Y: ± 2 %
Screen Refresh	30 Hz … 150 Hz
Sensors	Three light-to-frequency converters with graded neutral-density filters. One sensor for detection of monitor vertical refresh.
Interface	Proprietary serial interface from EIZO Display Technologies
Measurement Resolution	
• 0 … 942 cd/m²	0.026 cd/ m²
• 942 … 1884 cd/m²	0.051 cd/m²
• 1884 … 3750 cd/m²	0.103 cd/m²
Acceptable Environments Conditions	
• Operating Temperature	0 … 40 °Celsius
• Relative Humidity	10 … 90% non-condensing
• Storage Temperature	0 … 70 °Celsius

3.2 Serial Spot Meter

Serial Spot Meter	
Measuring range for "luminance"	0.05 cd/m² … 20,000 cd/m²
Total error	± 9.6 % (class B specification according to DIN 5032-7: ± 10 %)
Measuring distance	50 cm (40 … 70 cm)
Measuring angle	1°
f 2,u value (veiling glare)	≤ 1 %
Measuring spot diameter in 50 cm distance	16 mm
Dimensions (L x W x H)	110 mm x 160 mm x 50 mm
Calibration	cd/m² with factory calibration certificate
Interface	RS 232, 9600 Bd, 8D, 1S, N
Power supply	1.5 V MIGNON
Operating temperature	+5 °C … + 40 °C
Storage temperature range	-20 °C … + 60 °C

3.3 Universal Serial Luminance Meter

The following specifications apply to measurements made under the following conditions:

- Light output set at 214 cd/m²
- Integration time set at 100 fields
- Measurements taken 30 seconds after the zero calibration of the device.

Universal Serial Luminance Meter	
Measuring range for "luminance"	0.1 cd/m² … 800 cd/m²
Accuracy	± 0.006 xy ±3% Y *)
Precision	≤ 0.0002 cd/m² *)
Repeatability	± 0.002 xy ±1% Y *)
Measuring angle	10°
Calibration	cd/m² with factory calibration certificate
Interface	RS 232, 9600 Bd, 8D, 1S, N
Operating temperature	+ 5 °C … + 40 °C

*) valid between 1 and 800 cd/m²

3.4 Advanced Serial Luminance Meter

The following specifications apply to measurements made under the following conditions:

- Light output set at 214 cd/m²
- Integration time set at 100 fields

Serial Luminance Meter	
Measuring range for "luminance"	0.1 … 1000 cd/m²
Accuracy	± 0.004 xy ±3% Y *)
Precision	≤ 0.0002 cd/m² *)
Repeatability	± 0.002 xy ±1% Y *)
Measuring angle	≤ 10°
Calibration	cd/m² with factory calibration certificate
Interface	RS 232, 9600 Bd, 8D, 1S, N
Operating temperature	+16 °C … +30 °C
Storage temperature range	-0 °C … + 40 °C

*) valid between 1 and 1000 cd/m²

Appendix 4

4.1 Additional information

In addition to the online help function integrated into SMfit® Total Care, the following resources offer detailed information about products used with SMfit® Total Care.

Monitor Instruction Manual

An instruction manual is included with each monitor describing its set-up, installation, safety considerations and performance specifications.

Photometer Operation Manuals

An operating manual is included with each photometer describing its installation, use and performance specifications.

4.2 Cable Kits

Cable Kits	Order Number
Cable kit for connecting up to 4 EIZO Display Technologies CRTs with RJ11 connectors. It contains: • 3 bus cables with RJ11 connectors; • 1 bus cable with a DB-9 connector and a RJ11 connector; • a connection box; • a photometer adapter	6GF6980-4AA
Cable kit for connecting up to 2 EIZO Display Technologies 5MP CRT monitors with the display controller SMG 2125D/S. It contains: • 2 bus cables with RJ11 connectors; • a connection box; • a photometer adapter	6GF6980-2AA01

Cable Kits	Order Number
Cable kit for connecting up to 3 EIZO Display Technologies LCDs with RJ11 connectors. It contains: • 2 bus cables with RJ11 connectors; • 1 bus cable with a DB-9 connector and a RJ11 connector; • a photometer adapter	6GF6980-1TA08
RS-232-to-USB bus adaptor for connecting EIZO Display Technologies LCDs with workstations that do not offer a serial port. It contains: • 1 adaptor cable • 1 installation CD	6GF6980-8WG15

See also

Connecting a display from EIZO Display Technologies to a host computer (Page 17)
Connecting an EIZO monitor to a host computer (Page 20)

4.3 Contact

Technical support:

http://www.eizo.eu

Global Hotline support

Eizo Display Technologies	
Online Support Request:	http://www.eizo.eu
China (Chinese)	800 8100687
International (English)	+49 9131 7 31798
International (German)	+49 9131 7 31688
USA (English)	+1 (888) 900-8383

4.4 SMfit® Total Care License Agreement

EIZO GmbH

Terms of licence stipulated by EIZO GmbH, Karlsruhe

- hereinafter referred to as EIZO -

1. Transfer of software

1.1 EIZO GmbH, Siemensallee 84, 76187 Karlsruhe is the licencer of the transferred software.
The transfer of this software is exclusively subject to the terms of licence which are stipulated here.

The licencee confirms his approval of the present terms of licence by installing the software.

The licensed article is the software SMFit EIZO GmbH.

The licencee is granted simple (not exclusive) right of use of the software by EIZO.

Should the licencee not obtain a storage medium, he is entitled to make copies of the software that is already available to him in the extent necessary to the exercise of the rights of use he has been granted. This is applicable in lieu thereof for electronic transfer (download).

1.2 The licencee is granted the non-exclusive and unlimited right to install the software on as many of his computers as he wants to. The transfer of this right is subject to the following conditions.

1.3 Please note that updates/upgrades cannot be transferred free of charge, even if the licencee is entitled to use, and in possession of, an earlier version of the software. The respective earlier version of the software does not entitle to a free update/upgrade.

2. Other rights and obligations of the licencee

2.1 The licencee must not change, reverse or compile the software, nor must he, unless it is imperatively allowed pursuant to the provisions of the copyright law, take out single components. Moreover, the licencee must not remove alpha-numeric identifiers, tags and copyright law notations from the software or the storage medium, but will, inasmuch as he is entitled to make copies, leave them unchanged when he makes copies. The above regulation is applicable in lieu thereof for the transferred documentation.

2.2 The licencee is entitled to transfer the right of use which he has been granted to a third party on condition that he enters into a written agreement with this third party which meets all the provisions as are laid down here and that he does not retain any copies of the software.

3. Material defects - defects in software or documentation

3.1 Subject to the regulations detailed hereafter, EIZO is liable for material defects, i.e. for deviations of the software from the corresponding documentation (hereinafter called 'defects'), and for defects in the storage media or the documentation which were caused prior to or upon transferring the software and/or documentation.

3.1.1 If the licencee does not exercise the rights of use granted to him, if he exercises them on an earlier software version, or if the offered software updates should not be input, then

EIZO is liable for defects of the earlier version only in the extent in which these defects also occur in the new version of the software. Potential claims on the part of the licencee relating to material defects in the earlier version and made on the basis of the corresponding licence agreements, remain unaffected.

3.2 Defects in the storage media of the software will be eliminated by new deliveries and/or by enabling the download of a new copy which is free of defects. In the event of damages to storage media material the liability to pay damages does not extend to expenses incurred for the replacement of lost data and information.

3.3 Guarantee claims become prescribed within 12 months as of the beginning of limitation. This term does not apply, if the law pursuant to Art. 438, paragraph 1, section 2 of the German Civil Code (Buildings and building materials), Art. 479, paragraph 1 of the German Civil Code (right of recourse) and Art. 634a, paragraph 1, section 2 of the German Civil Code (defects or deficiencies in the construction) stipulates longer terms, nor does it apply in the event of premeditation, fraudulent concealment of the material defect, or non-compliance with warranted properties. The legal regulations on expiry suspension, suspension and restart of terms remain unaffected.

3.4 Objections within the sense of Art. 377 and 381, paragraph 2 of the German Commercial Code relating to material defects have to be made in writing.

3.5 EIZO is to be given the opportunity to eliminate material defects within an appropriate period.

3.6 In the event of a failure in the elimination of material defects the licencee is entitled to the legal guarantee claims.

3.7 Claims relating to defects are only applicable if they can be reproduced in the reference/target hardware which is mentioned in the order details and/or in the product description. Claims relating to defects are not applicable if the deviation from the corresponding documentation is irrelevant, or serviceability only slightly impaired, and in the event of software extensions carried out by the licencee. The analysis and elimination of defects is subject to EIZO's decision and will be carried out either at EIZO or at the site where the software was installed.

The licencee provides EIZO with the available documents and pieces of information which are necessary for eliminating the defects. Should EIZO eliminate the defects at the site where the software was installed, the licencee will make sure that the required hardware and software as well as the necessary operating conditions with the appropriate operating personnel will be made available to EIZO free of charge and in such wise that works can be carried out expeditiously.

The licencee will provide EIZO with electronic data processing equipment and other systems free of charge for the period during which efficiency measures are being undertaken. The licencee accepts restrictions to serviceability. The licencee engages not to make any claims – of whatever nature - relating to this.

3.8 Claims of the licencee which relate to the expenses necessary for the elimination of material defects, such as, in particular, travel and transport expenses and labour and materials costs, are excluded if expenses rise because the software has subsequently been transferred to a place different from the branch of the licencee as existing upon conclusion of the contract, unless the transfer of the software is in accordance with its contractually agreed use.

3.9 The licencee has a right to recourse on EIZO pursuant to Art. 478 of the German Civil Code only if he has not reached any agreement with his customer that exceeds the legal warranty claims. As regards the extent of the licencee’s recourse on EIZO in the sense of Art. 478, paragraph 2 of the German Civil Code, section 3.8 is applicable in lieu thereof.

3.10 Claims for indemnity made on the part of the licencee on account of a material defect are excluded. This is not applicable in case of fraudulent concealment of the material defect, or non-compliance with warranted properties, in case of injury to life, limb, health or freedom, or in cases of deliberate or wantonly negligent breach of duty on the part of EIZO.

3.11 The above provisions do not imply a reversal of the burden of proof to the detriment of the licencee. Any claims in excess thereof or other than stipulated in this paragraph which are made on the part of the purchaser with regard to a material defect are excluded.

3.12 The provisions laid down in this paragraph are applicable in lieu thereof for defects in the documentation and for wrong deliveries and underdeliveries.

4. Prices, conditions of payment and offsetting; other support

4.1 All prices which are mentioned here are calculated ex works and do not include packing nor the applicable turnover tax.

4.2 Conditions of payment for the software depend on the dates of order.

4.3 The licencee can only offset such claims as are beyond dispute and as have been legally ascertained.

5. Industrial and intellectual property rights; deficiencies in title

5.1 Unless otherwise agreed, EIZO is only in the country of delivery bound to transfer the software free of the industrial and intellectual property rights of third parties (hereinafter referred to as 'property rights'). In the event of a third party making legitimate claims relating to the violation of property rights through the licencee’s use of the software transferred by EIZO, EIZO will assume liability on behalf of the licencee within the period subsequently determined.

5.2 At its own choice and at its own expenses EIZO will either obtain a right of use for the software in question or it will change or exchange the latter in such wise that it does not violate the property right. Should EIZO prove to be incapable of doing so on reasonable terms, the licencee will be granted the legal withdrawal and redhibitory rights.

5.3 The aforementioned obligations to be met by EIZO are only applicable if the licencee immediately informs EIZO in writing about the claims put in by a third party or if he does not acknowledge a violation so that the right to take all necessary defence measures and to conduct composition negotiations is reserved to EIZO. Should the licencee discontinue his use of the software for damage mitigation or other important reasons, he is bound to inform the third party that the discontinuation of use does not imply the recognition that a property right has been violated.

5.4 All claims on the part of the licencee are excluded if he is answerable for the property right violation.

5.5 Claims on the part of the licencee are further excluded if the property right violation has been caused by the specifications of the licencee or by an application which EIZO could not foresee, or by the fact that the licencee has altered the software or used it in combination with products that were not delivered by EIZO.

5.6 In the event of property right violations the licencee’s claims that are regulated in section 5.1 become applicable, in other cases the provisions laid down in sections 3.5 (supplementary performance) and 3.9 (right of recourse) in lieu thereof.

5.7 In the event of other deficiencies in title the regulations of paragraph 3 become applicable in lieu thereof.

5.8 EIZO's obligation to pay damages is regulated in paragraph 8. Any claims which relate to a deficiency in title in excess thereof or other than stipulated in this paragraph 5 which the licencee puts in against EIZO and persons employed in the performance of EIZO's obligations are excluded.

5.9 In the event of deficiencies in title occurring in the documentation the above regulations are applicable in lieu thereof.

6. Delay

6.1 Should non-compliance with the terms of delivery be due to force majeure, e.g. to mobilisations, wars, insurrections or to other such events as, for instance, strikes and lockouts, the terms will be extended correspondingly. The same is applicable in the event of deliveries that do not reach EIZO in time or in due form.

6.2 Claims for indemnity made on the part of the licencee on account of the delay of the transfer as well as claims for indemnity made instead of the performance of services within the bounds stipulated in section 9.2 are excluded in all cases of delayed transfer, also in cases where possible deadlines set to EIZO for the transfer have expired. This is not applicable in cases of premeditation and wanton negligence or in case of injury to life, limb or health, where liability is imperative. The licencee can withdraw from the contract in accordance with the statutory provisions only if EIZO can be held responsible for the delayed transfer.

The above provisions do not imply a reversal of the burden of proof to the detriment of the licencee.

6.3 On EIZO's request, the licencee is bound to explain, within a reasonable period of time, whether, despite the delay in transfer, he insists on the transfer and/or which of the claims and rights he is entitled to he intends to put in.

7. Frustration, adaptation of contract

7.1 If the transfer of software/documentation is rendered impossible, the licencee is entitled to ask for damages, unless EIZO cannot be held responsible for the delay. However, damages paid to the licencee are restricted to 10 % of the value of that software/documentation part that on account of the frustration could not be operated purposefully. This restriction is not applicable in cases of premeditation and wanton negligence or in case of injury to life, limb or health, where liability is imperative. This does not imply a reversal of the burden of proof to the detriment of the licencee. The right of the licencee to withdraw from the contract remains unaffected.

7.2 In the event of a temporary frustration paragraph (delay) becomes applicable.

7.3 If unforeseeable events within the sense of section 6.1 considerably alter the economic import or content of the transfer, or considerably affect EIZO's operation, the appropriate alterations will be made to the agreement in good faith. If this should prove unjustifiable in economic terms, EIZO will be entitled to withdraw from the contract. Should EIZO wish to use this right of withdrawal, it has to inform the licencee hereof immediately upon taking cognizance of the consequences of the event, even though it might have reached an agreement on the extension of the delivery period with the licencee.

8. Other claims for damages, statute of limitation

8.1 Claims for damages made by the licencee for whatever legal ground, in particular claims relating to the violation of liabilities arising from the contractual obligation and from illicit action, are excluded.

8.2 This is not applicable where liability is imperative, e.g. in cases falling under the Product Liability Act, in cases of premeditation, of wanton negligence or injury to life, limb or health, or where essential contractual obligations are violated. However, the claim for the violation of essential contractual obligations is restricted to damages foreseeable and typical for this type of contract, unless in cases of premeditation or wanton negligence, or where there is liability for the injury of life, limb or health.

8.3 To the extent in which the licencee has been granted claims for damages, these become prescribed after the expiry of the limitation period stipulated in section 3.3. The same is applicable for claims which the licencee makes in the context of damage prevention measures (e.g. product recalls). For claims to damages falling under the Product Liability Act the legal statues of limitations are applicable.

8.4 The above provisions do not imply a reversal of the burden of proof to the detriment of the licencee.

9. Export licences, transfer of contractual rights and obligations

9.1 The export of software/documentation may, because of type or purpose, be subject to the obligation to obtain a permit (see also 'References made in order details, delivery notes and invoices')

9.2 EIZO may transfer the rights and obligations arising from this agreement to a third party. The transfer will take effect unless the licencee objects in writing within four (4) weeks of receipt of a pertinent notification. EIZO will point this out in the notification.

10. Place of jurisdiction and applicable law, obligation of contract

10.1 Provided the licencee is a dealer or trader, the exclusive place of jurisdiction for all litigations arising directly or indirectly from the contractual relationship is the location of EIZO's headquarters in Karlsruhe. However, EIZO is also entitled to file a lawsuit at the location of the licencee.

10.2 For the legal relations of this contract German material law will be applicable excluding the United Nations Convention on Contracts for the International Sale of Goods (CISG) as well as standards pertaining to other legal systems, in particular the reference standards of the Introductory Act to the German Civil Code.

10.3 Even if individual regulations of this agreement should become legally ineffective, all other parts of the agreement will remain binding. This is not applicable where adherence to the contract would constitute an unreasonable hardship for one of the parties.

List of abbreviations

A

A	
AAPM (TG-18)	American Association of Physicists in Medicine (Task Group 18)
ASLM	Advanced Serial Luminance Meter
C	
CIE	Commission internationale de l'éclairage
D	
DDC	Display Data Channel
DHCP	Dynamic Host Configuration Protocol
DICOM	Digital Imaging and Communication in Medicine
DIN	Deutsches Institut für Normung
DPMS	Display Power Management Signaling
DVI	Digital Video Interface
G	
GCT	Gamma Correction Table
GUI	Graphical User Interface
I	
ICS	Integrated Consistency Sensor
ISS	Integrated Stability Sensor
L	
LCD	Liquid Crystal Displays
LUT	Look Up Table
O	
OSD	On Screen Display
S	
SCD xxxxx	Smart Color Display
SMD xxxxx	Smart Monochrome Display
SMfit	Quality Assurance tool from EIZO Display Technologies
SMPTE	Society for Motion Picture and Television Engineers
T	
TCP/ IP	Transmission Control Protocol / Internet Protocol
Measuring units	
cd/m²	candela per square meter
ftL	foot Lambert

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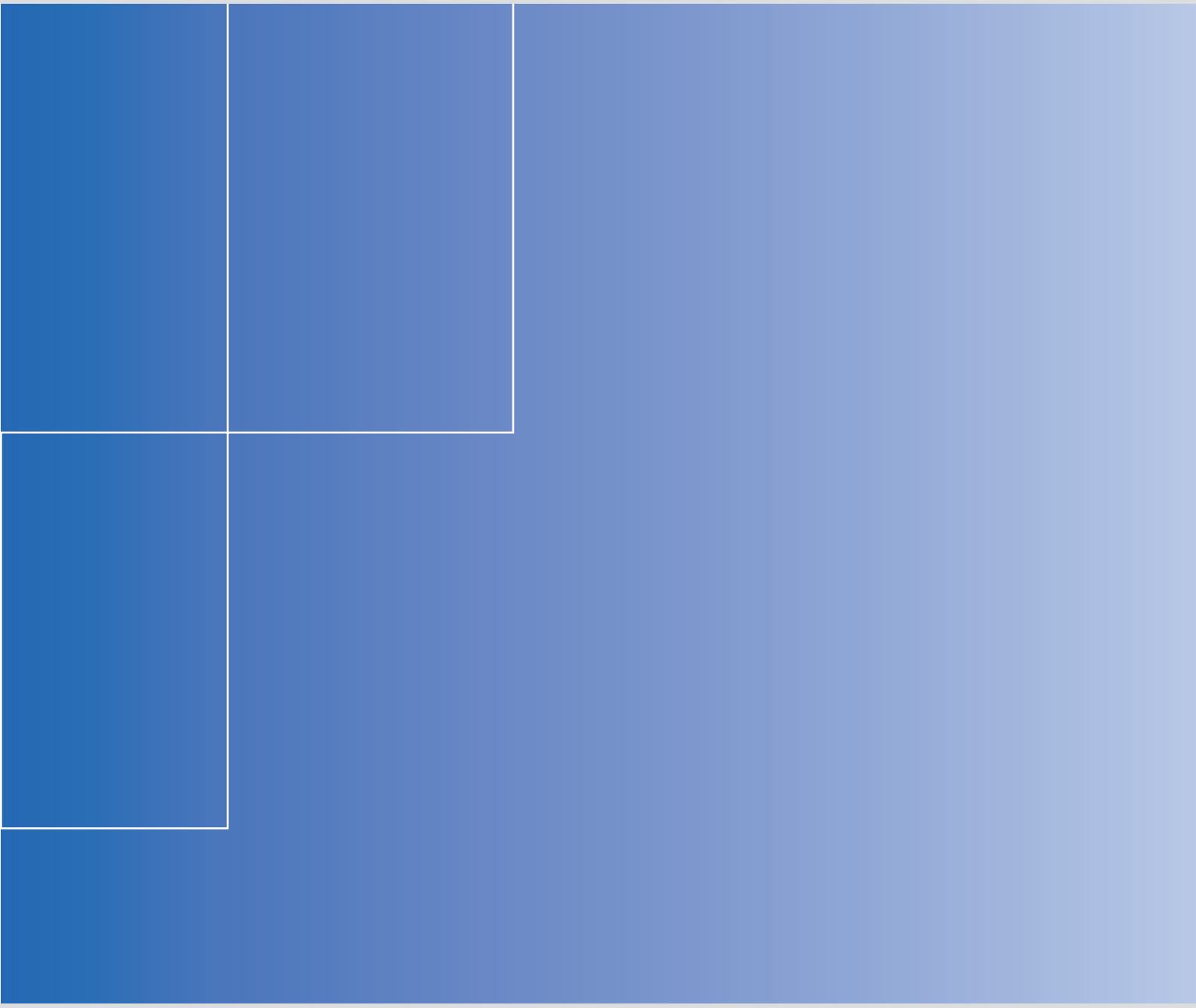

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